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To cite this article: Silja Klepp & Hartmut Fünfgeld (2022) Tackling knowledge and power: an environmental justice perspective on climate change adaptation in Kiribati, *Climate and Development*, 14:8, 757-769, DOI: [10.1080/17565529.2021.1984866](https://doi.org/10.1080/17565529.2021.1984866)

To link to this article: <https://doi.org/10.1080/17565529.2021.1984866>



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Published online: 09 Nov 2021.



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Tackling knowledge and power: an environmental justice perspective on climate change adaptation in Kiribati

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ABSTRACT

Reducing vulnerabilities is at the core of climate change adaptation interventions. This goal is usually approached from the perspective of increasingly universal adaptation methodologies, tools and services that are grounded in Western scientific thought and knowledge. Questions of (in-)justices and new or reproduced vulnerabilities play a marginal role in adaptation interventions. In this paper, we argue that a failure to acknowledge, let alone address, the intricate linkages between knowledge and power risks creating fundamental injustices as part of well-intended adaptation processes and their outcomes. Using the Kiribati Adaptation Project (KAP) as a case study, we examine how knowledge hegemonies lead to unsatisfactory adaptation processes and outcomes when viewed from a justice perspective. Environmental justice lenses provide a useful framework for applying distributional, procedural and epistemic notions of injustice to tackle and interrogate the knowledge-power relations, which we identify as a profound part of adaptation interventions.

ARTICLE HISTORY

Received 9 November 2020
Accepted 18 September 2021

KEYWORDS

Climate change adaptation; environmental justice; recognition; epistemology; knowledge; epistemic violence; Kiribati; Oceania

Introduction

Over the past decades, climate change adaptation has become a growing arena of policy-making, producing new and altered forms of governance intended to deal with the manifold effects of anthropogenic climate change. The emerging role of adaptation has also provoked programmatic changes in the field of international development co-operation (Betzold & Weiler, 2018; Tanner & Horn-Phathanothai, 2014; Taylor, 2017). In this dynamic context, where climate change and its societal responses are virtually ubiquitous, the discourses, policies and practices of adaptation have far-reaching social and political effects, both intended and unintended (Klepp & Chavez-Rodriguez, 2018). In this paper, we examine the ascent of climate change adaptation as a new development paradigm embedded in, and at the same time compounding, existing politics of aid.

In recent years, the rapidly growing and highly interdisciplinary field of research on climate change adaptation has highlighted the dominance of technocratic and apolitical approaches towards adaptation as a major shortcoming that ignores power differentials among actors and thus may lead to exacerbated vulnerabilities, maladaptation, and ineffective and culturally inappropriate adaptation solutions (Eriksen et al., 2015; Nagoda & Nightingale, 2017; Nightingale et al., 2020). These studies highlight the critical role that powerful actors play in appropriating and co-opting the adaptation agenda in support of other goals. Equally, this research shows that notions of power often manifest through selective, accepted types of knowledge, such as technical fix rationalities, to establish political agendas and legitimise particular types of

adaptation processes (Nightingale et al., 2020), while closing off options for transformative adaptation. An example of such limitations is reducing adaptation to instrumental target outcomes that address climate change risk as a purely environmental problem without tackling the underlying structural causes of vulnerability (Few et al., 2017).

This study aims to highlight the relevance of justice-informed approaches to adaptation research and practice. It problematizes and examines climate change adaptation as situated within complex knowledge-power relations where select forms of knowledge are prioritized by powerful actors directing adaptation processes. These relations, we argue, can serve to explain underlying reasons concerning why well-planned efforts to adapt to climate change sometimes produce inequitable and unsuccessful outcomes. The Kiribati Adaptation Project (KAS) serves as a case study of the entanglements of knowledge and power in adaptation processes and outcomes in the context of international development co-operation. The case study highlights the potential of environmental justice perspectives for analysing knowledge-power interconnections to advance understanding of why some adaptation interventions produce adverse outcomes.

The Small Island Developing States (SIDS) of Oceania are considered especially vulnerable to the effects of anthropogenic climate change. Scientists have already observed various environmental changes connected to anthropogenic climate change in Oceania. These include stronger and more frequent storm tides, coastal erosion, the loss of biodiversity and fish stocks and the salinization of fresh water stores and

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agricultural land (Nurse et al., 2014). The 2019 IPCC Special Report on the Ocean and Cryosphere in a Changing Climate underlines the risks of sea-level rise for SIDS. By 2100, the report predicts a likely rise of global mean sea level of between 0.29 and 0.59 m under the RCP2.6 scenario and between 0.61 and 1.10 m under RCP8.5, comparing 1986–2005 (Oppenheimer et al., 2019). Kiribati is classified as both a SIDS as well as a Least Developed Country (LDC). Most of the land in Kiribati's main island and capital South Tarawa is located less than three metres above sea level. The island's width averages only 450 metres, while it is more than 30 kilometres long. It is home to 50,000 inhabitants, i.e. approximately half the total population of Kiribati (see Figure 1). Like most countries of Oceania, Kiribati experiences 'multidimensional inequalities' (Dietz, 2009, p. 189) that underpin the impacts of global climate change. Along with profound socio-economic problems and limited opportunities for financing adaptation operations, Kiribati, in common with many other LDCs, suffers from structural inequalities and the disempowering and impoverishing heritage of colonialism. Its vulnerability to climate change, while scientifically evident and material, is also politically charged and contested, as we discuss further below.

In the following, we will first discuss the methods used as part of the Kiribati case study, before moving to a review of recent research that problematizes knowledge-power relations in climate change adaptation. This review opens up specific questions of knowledge and power constellations, which we then examine using selected adaptation interventions in Kiribati as a case in point. To conclude, we reflect on the broader

implications of the Kiribati case by drawing on environmental justice perspectives, which open up fertile ground for further research.

Methods

Today, Kiribati is perceived as a climate change poster child, as consultants and staff of International Cooperation underlined in interviews that were carried out by the lead author. Fieldwork stays, each of four months, were undertaken in Kiribati in 2011 and 2015 and allowed investigations grounded in ethnographic, qualitative empirical research methods. The research for 2015 built upon the 2011 field research where the focus lay on climate mobility and migration. In 2015, the growing importance of adaptation interventions in Kiribati had come to the forefront of public debate, thus leading the researcher to focus on the effects, side-effects and negotiation processes of climate change adaptation discourses, practices and policies. The lead author primarily conducted open, structured and semi-structured interviews in Kiribati (25 in 2011 and 18 in 2015) with local actors and international experts involved in climate change adaptation, such as government officials, representatives from NGOs and international organizations, including managers and staff of the Kiribati Adaptation Project (KAP, explained further below). The interviews focused on e.g. the work of the informants within the adaptation realm, social processes linked to adaptation, and social changes in Kiribati due to adaptation interventions. The lead author planned to re-visit Kiribati in 2020 but was

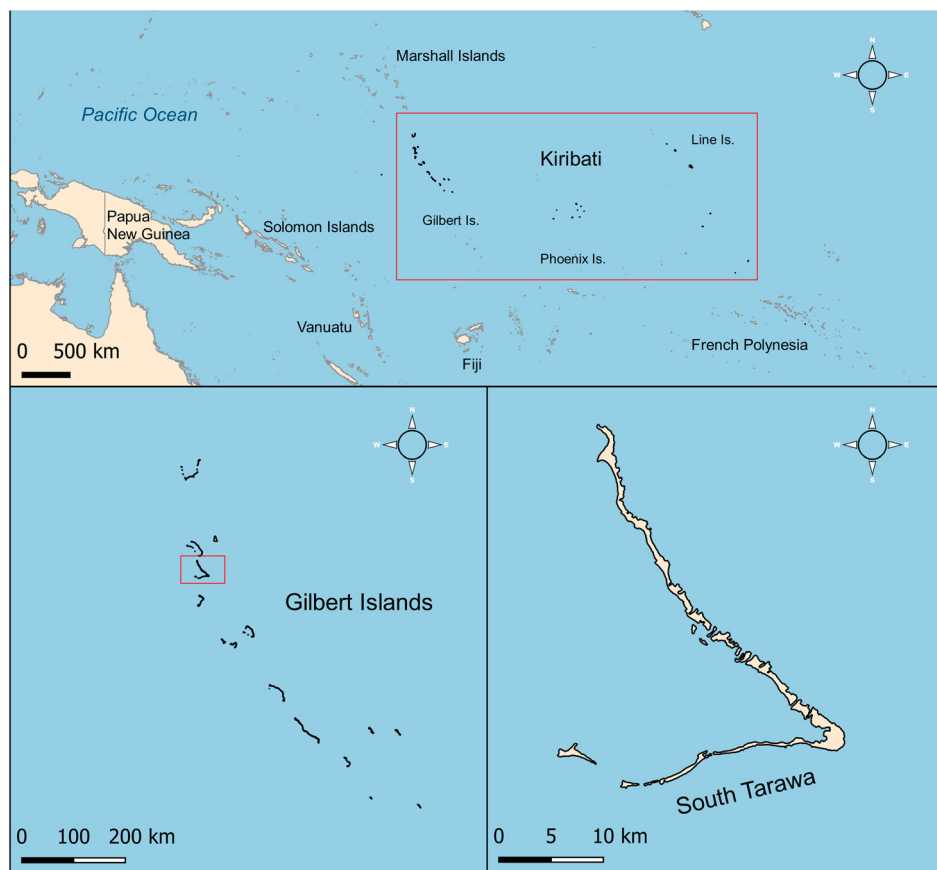


Figure 1. Location of Kiribati and map of South Tarawa atoll.

unable to do so due to the COVID-19 pandemic. Close contact, mainly through Facebook, Messenger and WhatsApp was maintained with different collaborators in Kiribati, who also provided updates on the topic of evolving climate change (discourses). In the research process, the production of knowledge was understood from the outset not as the static or monological practice of an 'objective researcher' extracting information from interviewees, but rather as a dialogue (Crang & Cook, 2007). The interview material was transcribed and analysed partly with the assistance of the MAXQDA qualitative analysis software (coding and identifying major themes from the interviews). The analysis followed an interpretative, constructivist research paradigm.

Analysing power and knowledge in climate change adaptation

In the burgeoning literature on climate change adaptation, the political implications and the procedural, social nature of climate change adaptation (Eriksen et al., 2015) are acknowledged as central to arriving at more just and effective climate change adaptation measures and policies that strengthen the most vulnerable (Morchain, 2018; Nightingale, 2017; Taylor, 2015). However, few studies have attempted to unpack the complexity of knowledge and power and its political effects on communities involved in climate change adaptation (e.g. Nagoda & Nightingale, 2017; Ojha et al., 2016). Considering adaptation in the broader context of development and environmental governance, an increased focus on the roles of science and knowledge and the ways in which these are co-producing and re-producing the interests of institutions and elites is warranted (cf. Foucault, 1980; Goldman et al., 2018; Jasanoff, 2004; Leach, 2008).

As a general observation, knowledge practices in different socio-cultural contexts are based on different ontologies; inevitably, knowledge is valued, negotiated and passed on in various ways (Law & Mol, 2002). Seen through a Foucauldian perspective that foregrounds relational notions of power, knowledge and power are inseparably linked: 'the exercise of power perpetually creates knowledge and, conversely, knowledge constantly induces effects of power' (Foucault, 1980, p. 52). Western post-enlightenment ontologies that favour specific types of knowledge have dominated power/knowledge practices in responses to climate change – often to the exclusion of forms of knowledge grounded in other ontological and epistemological traditions (Goldman et al., 2018; Knox, 2015; Mahony & Hulme, 2018). In many adaptation processes, forms of power are enacted and effectuated primarily by actors accepting or dismissing certain forms of knowledge, which legitimizes adaptation and influences its processes and outcomes. To some extent, the dominance of the Western scientific approach in climate change adaptation is a by-product of the need to understand climate change as a global change phenomenon that requires global-scale analytical approaches grounded in verifiable evidence. Developed by the global scientific community, such evidence has been put forward as objective and at the same time politically neutral knowledge, including that produced as part of the assessments and scenarios of the Intergovernmental Panel on Climate Change

(IPCC) (Beck & Mahony, 2017). In this purportedly objective process of observation and projection, (scientific) knowledge has become detached from localized forms of meaning (Jasanoff, 2010), resulting in a climate science that 'cuts against the grain of common sense and undermines existing social institutions and ethical commitments' (Jasanoff, 2010, p. 233).

Such concerns suggest that, rather than constituting separate categories that produce or influence adaptation programmes, power and knowledge are mutually interdependent dimensions in which adaptation is conceptualized, enabled (or hindered) and enacted. Our analytical approach promotes climate change adaptation as a 'travelling idea' that is interpreted, localized and modified in different settings (Weisser et al., 2014). Adaptation in this regard is not a linear transplantation from the North to the South, or from the global to the local, but rather mediates between various sites and ideas (Weisser et al., 2014, p. 117). The configuration of these connections and interdependencies is the focus of the empirical study in Kiribati. Using the case study, we illustrate how action on climate change adaptation is changing knowledge and power relations through consultancy work, funding practices and the presumption that I-Kiribati society – and the ontological and epistemic perspectives by which it is guided – is backward and deficient in relevant information.

Approaches grounded in environmental justice and its trivalent theoretical lens – namely its focus on distributive and procedural justice and on justice as recognition (Holland, 2017; Walker, 2012) – hold significant potential to converse with and inform critical adaptation research as well as socially and ethically aware adaptation practice that places knowledge-power issues at the centre. In times of socio-ecological crises and an increasing focus on human-environment relations in the Anthropocene, environmental justice has received renewed attention as a growing and globally networked yet heterogeneous social movement and, at the same time, as an analytical perspective that can guide critical social research. The interconnections between environmental justice as a movement and climate change are manifold. Influenced by a growing social movement for climate justice, the focus is largely on questions regarding the inequitable distribution of, on the one hand, mitigation efforts (Caney, 2018, 2016; Kenner, 2019; Moss, 2018) and of the impacts of climate change on the other hand (Paavola & Adger, 2006; Roberts, 2009; Roberts & Pelling, 2020). Generally speaking, however, it can be observed that thorough conceptualisations of justice, including the integration of theories of justice, is still lacking in the study of climate change adaptation (Fünfgeld & Schmid, 2020). The absence of analyses grounded in theories of justice is particularly noticeable with regard to examining the (side) effects of adaptation interventions on local, regional and national scales – in contrast to a large body of literature that examines questions of justice in global climate change governance (Benzie, 2014; Betzold, 2015).

Since the early 2000s, a number of authors have explicitly examined aspects of justice in adaptation; often, however, without referring to environmental justice frameworks. Linking the philosophical underpinnings of climate justice to theories of substantive justice (Caney, 2005), there is a growing body of literature discussing mechanisms for the just

distribution of adaptation funds on a global to local scale (Baatz, 2018; Colenbrander et al., 2018; Paavola, 2008; Paavola & Adger, 2006). Exploring the root causes for vulnerability in the context of climate change adaptation and building social capital through adaptation is at the core of Adger's foundational work on climate change adaptation (Adger, 2003; Adger & Kelly, 1999). In his work with Paavola, the focus is on underlying justice aspects in adaptation – also on a global scale – and on the exclusion of communities in decision-making processes concerning adaptation (Paavola & Adger, 2002, 2006). At the intersection of environmental justice and localized and regional adaptation, environmental justice groups have underlined the central importance of building adaptive capacity within communities to support the most vulnerable (Schlosberg & Collins, 2014). More recently, scholars have pointed out the irreversible lock-ins created by development trajectories that have constrained future space for adaptation, e.g. by eroding potentials for adaptive capacity development (Gajjar et al., 2019).

In the emerging literature on justice in adaptation, questions of procedural justice and the inclusion of vulnerable or marginalized groups and their living environments in adaptation planning and implementation are a growing focus (Fünfgeld & Schmid, 2020; Holland, 2017; Soanes et al., 2021), in particular with regard to examining decision-making processes from a justice perspective (Benzie, 2014; Graham et al., 2015; Holland, 2017; Paavola & Adger, 2002, 2006). The importance of recognizing different dimensions of justice and how these can be considered in urban planning is discussed by emerging urban climate justice scholarship (Holland, 2017; Steele et al., 2015, 2012), underlining the significance of cities in climate action (Shi et al., 2016). Thomas and Twyman (2005), on the other hand, scrutinize equity, distributive and procedural justice in the multiscale governance of adaptation in natural-resource dependent societies. Questions that are raised here and in other work on just adaptation are fundamental but often neglected: How can fair outcomes (Graham et al., 2015) and community empowerment be achieved through focusing on social justice in adaptation (Benzie, 2014)? Who profits most from adaptation finance (Barrett, 2013; Webber & Donner, 2017)? How can adaptation interventions be designed so that they open up avenues for socio-ecological transformation (Few et al., 2017)? Such questions of inclusion, power and just transition form the backbone of an emerging research agenda on transformative climate justice (see Newell et al., 2021).

Scholars who explicitly discuss the importance of environmental justice perspectives in adaptation underline the significance of the procedural inclusion of marginalized and vulnerable communities and individuals, while also calling for greater recognition of multiple ontologies and cultural dimensions (Anguelovski, 2016; Bulkeley et al., 2014; Klepp, 2018; Schlosberg & Collins, 2014). Applying a capabilities lens, some environmental justice scholars have emphasised the importance of securing basic capabilities and needs and the right to self-determination as a foundation for successful adaptation (e.g. Schlosberg, 2012, 2009). In recent years, the justice dimensions of adaptation have also been discussed – more or less explicitly – in the broader context of critical social

theory (Eriksen et al., 2015; Nightingale, 2017). This includes, but is not limited to, political ecology approaches (Taylor, 2017), critical race studies (Hardy et al., 2017), intersectional discrimination (Osborne, 2015), feminist studies (Chavez-Rodriguez, 2013) and de-colonising studies (Cameron, 2012; Farbotko, 2010; Klepp & Chavez-Rodriguez, 2018; Ulloa, 2018). As these growing discourses on the intersection of justice and adaptation research show, justice in adaptation is much more than just a matter of the distribution of climate change impacts and adaptation benefits.

As part of the analytical focus of this paper, we show that trivalent environmental justice perspectives focusing on distribution, recognition and procedures can provide a deeper understanding of knowledge and power in adaptation and, at the same time, act as a potential transdisciplinary bridge between scholarly analysis of adaptation processes and outcomes on the one hand and improving adaptation practice on the other. This bridging process can be facilitated in two directions. Firstly, environmental justice theories can help analyse the social and political effects of knowledge-power relations in adaptation policies and practices. Secondly, in the other direction, by drawing attention to social and cultural context, environmental justice concerns can pave the way for practical and normative insights into developing more just, transparent and potentially transformative adaptation processes and outcomes.

Examining constellations of knowledge and power in adaptation in Kiribati

The Kiribati Adaptation Project (KAP) serves as a case study to examine knowledge-power relations of climate change adaptation from an analytical perspective informed by environmental justice. From 2003 until 2018, the KAP was administered by the World Bank and financed by grants from the Australian Government, the Global Environment Facility (GEF), the Least Developed Country Fund (LDCF) and others. The KAP aimed to reduce Kiribati's vulnerability to climate change, climate variability and sea-level rise by raising awareness of climate change, assessing and protecting available water resources, and managing inundation. The project was implemented in three phases, each costing around 10 million US\$ (Dean et al., 2017). KAP II (2006–2011) and KAP III (2011–2018) interventions included improving water supply management; coastal management protection measures such as seawalls, mangrove replantation and protection of public infrastructure; strengthening laws to reduce coastal erosion; and population settlement planning to reduce personal risks. The KAP was completed at the end of 2018.

In general, the KAP can be seen as an archetypical large-donor adaptation project in its reliance on standardized consultancy knowledge, its emphasis on visible, preferably material outcomes, and its ignorance of ontological difference and its bureaucratic hurdles which can lead to exclusion, as the following paragraphs will illustrate. The KAP's outcomes have been criticized by some as adaptation failures (Dean et al., 2017; Donner & Webber, 2014). The implementation phase of the KAP can be described as problematic. Before phase KAP II, there were conflicts between the UNDP and the World Bank, both of whom wanted to take over the

management of the donor funds, as one junior member of the KAP staff explained in 2011:

Before KAP II started, the GEF had money for adaptation and there was a lot of, I guess I would say competition between the UNDP and the World Bank to be the ones who administer that money¹

And as a consultant to the Office of te Beretitenti (the President of Kiribati) specifies:

So there were some arguments whether who would be the partner with GEF. When it comes to spending the money. And the World Bank was reinventing itself at the time. So, they said, you know you should come in partnership with us. And then United Nations were saying, you should be running it through United Nations' processes.

The World Bank won the battle simply by making office space available for the GEF. (Laughing). That kind of battle was played out very unhelpfully in Kiribati. That's a little bit damning, because there was local involvement in both, but it was, it is, it annoys me when I read that Kiribati's government departments don't work well together because this is really more than you should expect of two very small departments [note by the lead author: Ministry of Environment and Office of te Beretitenti] to manage conflicts on that scale. It is more than you can expect from them to broker and negotiate between the United Nations and the World Bank. (Laughing).²

The consultant refers to the fact that instead of the institutions adapting to the conditions of government in Kiribati, the government had to manoeuvre two global players and their competing interests regarding who was to manage KAP funds. Moreover, as will be illustrated below, the way in which the KAP was implemented often seemed to be culturally and socially inadequate, which limited outcomes or even exacerbated the vulnerable mindsets of the I-Kiribati. As will also be shown, the KAP evoked configurations of knowledge and power that reminded the I-Kiribati of colonial times and that violated various dimensions of procedural and epistemic justice.

'Ticking the box' consultancy in climate change adaptation interventions

A central position in planning and implementing large donor projects such as the KAP is attributed to foreign consultants, who play a crucial role in the expert-driven bureaucratic architecture of development aid (see Moss, 2018). As the qualitative interviews undertaken as part of the fieldwork highlighted, KAP higher management staff were always recruited abroad.

Most KAP resources are spent on consultants while only less than half of the money is used for implementation on the ground which is why there are hardly any results.³

It became apparent in interviews that in the case of the KAP, many of the consultants did not stay in the country for more than a few weeks, some only for a couple of days. They also lacked significant experience in the country and were unfamiliar with local culture and the I-Kiribati language. As is common in development projects funded by multilateral donors, the consultants' 'mission-based' travel patterns were aligned with the largely technical character of the project that relied

on substantial input of external expertise. An Australia-based senior manager of the KAP, who flew in and out of the country on a weekly basis, described the work of many consultants in the following way:

It is true that many of the consultants come just for one project. On the implementing side of things, a lot of the consultants are hands on, getting things built and done in the infrastructure and they want to leave as soon as possible.⁴

As an I-Kiribati education expert explained, in the KAP the realization of projects was planned and implemented in rather standardized ways, leaving little space for context-specific flexibility:

For them it is like coming in with a set of boxes to be ticked and when they come in, they just tick their boxes.⁵

As Prance (2017, p. 124) writes, there was a push by the World Bank to realize 'hard adaptation' measures in Kiribati – built infrastructure that aims to protect the environment from the predicted effects of climate change, such as sea-level rise. Consultations regarding 'softer' forms of adaptation measures – i.e. activities that aim to improve community resilience based on e.g. awareness campaigns or education access – with communities in South Tarawa and six outer islands were cancelled during KAP II with the argument that 'they were not directly linked to physical investment' (Prance, 2017, p. 116).

A young staff member of the KAP, financed through a volunteer programme of AusAid, the former Australian Government development programme, illustrates his impressions regarding the implementation logics of the KAP in a similar way:

Donor projects, you know AusAid, and the New Zealand government, they want big outcomes and big progress quickly, you need to report, you know, this many metres for something built or this many litres of water to elude, you know? They just, they do their work if it's funded by this logic.

It seems that in the context of the KAP, climate change adaptation was predominantly seen as the implementation of visible adaptation projects that reflected the skills, possibilities and knowledge of the funding agencies. This meant that mostly engineering-driven construction of infrastructure, like sea walls, was prioritized. Consultant knowledge remained 'based on a view from afar' (Moss, 2018, p. 133). Even within the broader framework of Western 'expert' knowledge, certain disciplinary perspectives such as engineering were found to be foregrounded. As a consequence of limited knowledge of the local environment, poor maintenance and hasty planning, most sea walls were soon eroded and considered as failures also from an engineering perspective (Donner & Webber, 2014).

In large development projects, consultants play the role of mediators between donor policy on the one hand and practical project operations on the other (Moss, 2018). Keele (2019) suggests that climate change adaptation consultancy work follows a service- and profit-oriented logic, with consultants creating 'actionable climate knowledge' (Keele, 2019, p. 9) within the standardized frame of an adaptation project that allows them to 'tick the boxes' and 'privilege dominant political and economic interests' (Keele, 2019, p. 18). This runs the risk of avoiding – or utterly ignoring – adaptation responses

that acknowledge structural inequalities, messy local power realities, and the need for transformative out-of-the-box thinking to enable productive and lasting adaptation outcomes. In studying the KAP project, the voices, experiences and knowledges of ‘beneficiaries’ of the project appeared largely absent. The lack of recognition of different knowledge sources and diverse ontologies, underlining the absence of justice as recognition, seems to be especially commonplace in adaptation practices (Bravo, 2009; Cameron, 2012; Goldman et al., 2018; Morchain, 2018). To this effect, Kothari (2005) illustrates how ‘universalized technical experience’ (2005a: 434) has become more and more important in past decades in the development industry, where particular technical skills are recognized as universal knowledge. Context-specific knowledge, such as language and in-depth cultural knowledge, has become less required in consultancy over the years (Kothari, 2005).

Prance (2017) adds an insight into the national consultation process that was organized during KAP I. Different consultation rounds were organized in different communities in South Tarawa and in the Outer Islands in the local *maneabas* – large, open structures that are traditionally used for community gatherings in Kiribati. In this context, the consultation programme proved to be inadequate in different ways. The whole process, including the written material and the moderation of the gatherings, was organized in English, although most I-Kiribati speak very little or no English. Highlighting ‘ontological conflicts’, Prance (2017, p. 125) shows how the I-Kiribati and the consultants of the World Bank clashed over different cultural interpretations and customs. Prance argues that reflexive practice was missing in the consultation process, which would have allowed for the appreciation of the other’s ontologies and, potentially, for mutual learning, procedural and epistemic justice. These observations of Prance’s analysis of the KAP consultation process featured also in our findings: standardized consultancy knowledge has driven the World Bank’s agenda that implies ‘neoliberal assumptions about the role of participatory development and “traditional ecological knowledge”’ (Prance, 2017, p. 113), instead of acknowledging and opening up to the cultural frames and preferences of the I-Kiribati.

The consultation process for the KAP seems to epitomize the dominant role that seemingly universally applicable, technocratic knowledge, such as how to organize to build a sea wall, how to apply for funding or how to manage a project in a given time, often plays in adaptation projects. In this setting, it manifests as an inherent form of power with the ability to push other forms of knowledge out of core project planning and implementation discourses and processes, as described above. At the very least, its dominance leads to an uneasy, politically charged dichotomy between modernist, scientific and systematic Western knowledge on the one hand and seemingly out-dated, local and traditional knowledge on the other, as illustrated in the following quote by an I-Kiribati interviewee:

The character of these adaptation projects is that we are so needy, we need a lot of these things, but we are so poor we have absolutely nothing to use and we need external assistance to help us survive. My argument is that we are not useless because this is our land, our traditions. I have always argued that when they come, we have the I-Kiribati here

and the I-Matangs (white people) come with their ideas. Instead of working together they push them out because their ideas are traditional and therefore no good. That’s the problem.⁶

The young KAP staff member shares the I-Kiribati expert’s critical assessment and observes behaviour that in his view harks back to colonial times:

I think just in general, there’s a lot of nationalistic pride here in terms of the identity of being Kiribati and then they are afraid of having to do what they [note by the lead author: the donors] want. And the return ... the donors and all these consultants, is almost like the return of colonial administration.⁷

In Oceania, iconic images of vulnerable, sinking islands in times of climate change (Farbotko, 2010) and the international development industry’s preference for universal technical knowledge, as discussed above, have contributed to binary and simplistic portrayals of islanders as victims who are not able to adapt to climate change without external assistance from ‘invulnerable experts’ (Barnett & Campbell, 2010, p. 162). As a case in point, a study conducted by Webber (2013) illustrated how Kiribati elites and the government of Kiribati were pushed to enact vulnerability in order to obtain climate change adaptation financing, showing their need of assistance in a way that does not underline their own agency but rather their weakness and indigence. Against the background of climate change, Kiribati is portrayed by the international adaptation industry as backward, vulnerable and in need of development. These ‘climate crisis memoirs’ (Paprocki, 2018) are social constructions that exhibit constellations of knowledge and power connected to colonial times, which have been reconfigured and revitalized in the context of climate change (Farbotko, 2010; Klepp & Chavez-Rodriguez, 2018; Morchain, 2018). Furthermore, in adaptation interventions such as the KAP, the need for climate change adaptation is articulated with urgency and authority, and underlined by doomsday scenarios (De Wit, 2018, 2014; Paprocki, 2018). As an I-Kiribati education expert puts it:

They are saying that climate change is so big that it is beyond us. We need assistance from overseas again, like food preservation or what they call food security nowadays. We had ways to ensure food security in times of drought. There was talk at some stage of sending some people from overseas to come here to teach us how to preserve food, but we have traditional ways of preserving food.⁸

This statement underlines how orally traded forms of knowledge, which may be culturally sanctioned within local communities, are a poor fit for adaptation processes primarily driven by development aid adaptation knowledge and practices and by Western science epistemologies that, focus on ‘measurable’ or ‘observable’ evidence as a trigger for adaptation action (cf. Kerkhoff & Lebel, 2006). In other words, what is understood and acknowledged as forms of ‘adaptation to climate change’ may differ significantly depending on a person’s cultural and ontological perspective. In the KAP (and arguably in many other adaptation projects), external consultant knowledge is authoritative in this regard and does not allow the integration of local and traditional forms of knowledge: based on dominant Western notions of knowledge, local practices are considered either adaptive or maladaptive. As these understandings of adaptation are mostly unquestioned in

Kiribati, forms of *invisible power* (Lukes, 2005) that refer to an internalized acceptance of hegemonic understandings of what might be adequate ways of adapting to climate change seem to be at work here (Brand & Wissen, 2012; Hein, 2019). In the KAP, this hegemonic manifestation of knowledge-power relations was firmly underpinned by the narrative of the KAP's slogan written on a signboard at the Bairiki main office in big letters: 'adapt or perish' (Figure 2).

Through such narratives of threat and urgency that assert 'climate change is too big', well-known critiques of modernization approaches towards development aid from the 1970s and 1980s are invalidated and brushed aside. Moreover, it seems that many of the aspects criticized, e.g. those regarding the lack of agency of aid recipients and invalidating recipients' local knowledge, have re-entered development practice through the 'back door' of climate change adaptation discourse and interventions (cf. Taylor, 2015; Watts, 2015). Climate change adaptation discourse with its close connections to and partial rootedness in climate science suggests that generic approaches are adequate for guiding the adaptation efforts of societies. In the field of climate change adaptation, however, it is precisely the different ontologies, systems of governance and social conditions – in short, the socio-cultural context – that are particularly decisive and could open up very different and potentially transformative adaptation pathways. This is why environmental justice perspectives that are sensitive to different ontologies and that scrutinize power relations are so valuable, as we argue below.

Bureaucratic requirements as structural barriers to self-determination

The bureaucratic requirements and structures of donors' rules give rise to certain factors that make self-determination

in the context of the increasingly ubiquitous adaptation industry difficult. Within the KAP, the management requirements did not fit to a SIDS with a total of 103,000 inhabitants, where questions of accountability and bureaucratic requirements were poorly matched with the culture and capacities of Kiribati (Dean et al., 2017). As an I-Kiribati adaptation expert affiliated with the Office of the president put it:

Problems are caused by the implementation agency and the World Bank. Many projects are delayed or slowed down because of the extensive requirements of the World Bank.⁹

Again, these problems were primarily addressed by the World Bank by hiring external consultants to compile funding proposals, financial reports and final statements, rather than by adjusting poorly matched management requirements:

*'The World Bank requires external consultation before local contractors are allowed to carry out any work. Working with external consultants that lack sufficient knowledge of Kiribati can be difficult, sometimes because of cultural aspects.'*¹⁰

Information needs to be presented in a very specific way to access funding, which requires a specific kind of bureaucratic, technical knowledge, e.g. how to fill out different bureaucratic forms. Furthermore, the implementation of the various projects financed by regional organizations and international donors has proved neither effective nor coherent (Weir & Pittock, 2017). This has led to an overburdening of the already scarce human administration resources in SIDSs and to bureaucratic logjams and corruption (Donner & Webber, 2014).

A consultant of the Office of the President explains her understanding of the logics followed by the administration of the KAP:



Figure 2. Kiribati Adaptation Project in Bairiki, South Tarawa, Kiribati. Photo: Silja Klepp.

So there is a really stupid thing going on here. Where the best that the locals can do is judged by the standards that prevail in these huge organisations that're used to deal with these huge countries. When it comes to actually putting into practice, say a project design, which has been designed locally and looks, looks local. You know four pages long and pretty basic, they just don't have the mechanisms to respect that or honour that. What's actually gonna happen is their version and what the government wanted to happen is content to the dustbin. Scary things happening with countries that are locked into an observing position vis-à-vis foreign aid. And we'll be locked into that exact same dynamic vis-à-vis climate change adaptation money. Which is not a place you wanna be. I mean they don't call it a submission for nothing. The experience of submitting to the World Bank really does involve treating them as if they're God.¹¹

The very strong notions of a kind of 'submission' by Kiribati to the World Bank mentioned by the consultant links to observations that the imbalance of knowledge and access to information (e.g. regarding how to write a funding proposal that fits the expectations of the World Bank or the availability of funding for adaptation) is used by actors, especially by external consultants, to 'maintain control and ownership over the development agenda' (Morchain, 2018). An I-Kiribati education expert describes these configurations of knowledge, power and climate change as follows:

My suspicion is that some people are taking climate change, taking stands, that to me look like neocolonialism. They say that we are so small and useless, we depend entirely and that it is 110% on Western donors and everybody else and not on us.¹²

The inseparability of knowledge and power that becomes apparent in these findings from Kiribati connects to deeply rooted experiences of colonialism, submission and exclusion on various scales and to experiences of what has been described as epistemic violence (Spivak, 1999). The 'processes of prioritisation and exclusion' (Eriksen et al., 2015, p. 526) that are inherent in every climate change adaptation choice, 'necessarily have positive and negative effects distributed socially, spatially and through time' (Eriksen et al., 2015, p. 526). Western and Northern scientific institutions mainly produce the knowledge that forms the basis of, and validates, certain kinds of adaptation process and outcomes; namely those that fit well into international aid management schemes and thus are – intentionally or not – connected to or directly 'sell' Western technical knowledge and products (Cameron, 2012; Morchain, 2018). Rationalities of dominance and Western notions of modernism are personified in the figure of the external consultant and inscribed in international aid bureaucracy (Kothari, 2005). Due to such constellations of knowledge-power, adaptation projects such as the KAP fundamentally risk exacerbating inequalities and creating new forms of injustice and exclusion: "*Instead of working together they push them out because their ideas are traditional and therefore no good*", as the I-Kiribati education expert complained in our interview. Although the translation of adaptation ideas from global to local and from North to South is complex and an ongoing co-production process by various actors, 'translations of the adaptation idea are intrinsically political' (Weisser et al., 2014) and can create new forms of exclusion and inclusion. As we have shown, climate change adaptation interventions are especially prone to these mechanisms of exclusion and neo-

colonialism. They are entangled with narratives of "urgency", with global climate science that often does not consider different ontologies or local settings and with standardized, technocratic and technological fix solutions that limit opportunities for transformation and just adaptation.

Discussion: examining the knowledge-power nexus from an environmental justice perspective

Environmental justice provides a perspective that is based on local experiences of resistance and empowerment, calling for more information, participation and inclusion and the distribution of environmental goods and bads. This is why environmental justice perspectives have proved helpful and powerful, putting communities, local agency and livelihoods into the centre of climate change adaptation. Furthermore, environmental justice offers an analytical frame that can systematically and efficiently 'make claims' about justice concerns in climate change adaptation, as well as assist in uncovering such claim-making in research (Walker, 2012). Environmental justice concerns can therefore build a bridge across different domains of knowledge and power constellations in adaptation. In the following, we discuss the three dimensions of distributive, procedural and recognition justice commonly addressed by environmental justice scholarship in light of the Kiribati case study.

Dimensions of distributive justice

Acknowledging the culturally and socially diverse contexts in which climate change adaptation takes place, 'a plural, multi-valent understanding of the normative reasoning that goes on around the relation between environment and social difference is needed' (Walker, 2012). Notions of distributive justice have been a major focus in environmental justice movements and research. The Kiribati example highlights that there is seldom open discourse about the distribution of resource inputs, such as money and assets, which are associated with an adaptation project or policy. Questions such as 'who is included and who is excluded in the "community of justice"' (Walker, 2012) and 'what is going to be distributed and to whom' are rarely discussed with project stakeholders before an adaptation intervention is planned or realised. As the consultant of the Office of te Beretitenti put it, the ideas of the I-Kiribati government in this regard went into the 'dustbin'. Instead of adapting the bureaucratic process and the distributive procedures to the circumstances of a SIDS such as Kiribati, or at least supporting the I-Kiribati by adequately recording their ideas in the bureaucratic forms of the World Bank, most consultants seemed to have institutionalized a standardized understanding of adaptation that follows a service- and profit-oriented logic as a kind of an 'actionable climate knowledge' (Keele, 2019, p. 9). However, the complex undertaking of climate change adaptation, which is always locally bound, would need approaches that take the different ontologies and socio-political dynamics on the ground as a basis for finding socially and politically just and culturally appropriate responses that might have transformative potential.

This also highlights issues of procedural justice within the KAP.

Dimensions of procedural justice

The following aspects are at the heart of a common critique of adaptation, especially in countries such as Kiribati. As demonstrated above, instead of fostering participation and discussion in adaptation interventions, foreign consultants with limited awareness of the cultural context and living conditions of the I-Kiribati planned and implemented the majority of the KAP. Here, examining procedural justice can help address political equality and the institutional and decision-making context in adaptation (Holland, 2017), and tackle the entanglements of knowledge and power. In an adaptation project on the scale of the KAP, inclusive and transparent community-based participatory processes could have greatly contributed towards a just process and created more just outcomes – before the project started, at all stages of project implementation, and during re-planning of subsequent project phases. Such improved procedural justice, however, would have required acknowledging alternative ways of designing adaptation interventions and opening up to I-Kiribati ontologies that may involve culturally preferred ways of thinking about what an adaptation intervention could mean for the I-Kiribati. From the perspective of donors and external consultants, this may need to be grounded in non-standardized ‘out-of-the-box’ approaches that move e.g. in the direction of less visible community building and empowerment projects that (also) focus on the level of social structures. Alternatively, it could mean leaving the administration of projects to I-Kiribati civil society actors like the Kiribati Climate Action Network (KiriCAN). For the institutional reasons mentioned above, such approaches that embrace locally led adaptation (Soanes et al., 2021) can potentially destabilize the standardized set of bureaucratic requirements inherent in large-scale development projects.

Recognition as the key to knowledge-power relationships

This brings us to another and perhaps the most important dimension for tackling knowledge and power relations in climate change adaptation: the question of the transformative potentials of adaptation interventions, i.e. actions that are necessary when the impacts of climate change exceed the ‘ability [...] to manage through incremental adjustments’ (Few et al., 2017, p. 2; in reference to Klein et al., 2014). Adopting a recognition lens on justice highlights that an ‘epistemic community’ (Haas, 1992) has formed in climate change adaptation that defers to technical-fix rationalities and external consultant knowledge. This is accompanied by victimization of islanders by ascribing the I-Kiribati a passive, belittled role of incapacity and potential maladaptation. From the perspective of recognition justice (Schlosberg, 2007), one main reason why the I-Kiribati and their forms of knowledge are not ‘acknowledged’ are “cultural and institutional processes of disrespect which devalue some people in comparison to others, meaning that there are unequal patterns of recognition across social groups” (Walker, 2012, p. 50). The inclusion of populations affected by adaptation planning has been urged by many authors (Chu et al., 2016; Crate, 2011; Kelman, 2010; Nagoda & Nightingale,

2017; Rudiak-Gould, 2012). However, the focus on ‘local’ and on indigenous people and their knowledge is often accompanied by essentialising of ‘the local’ and by assumptions concerning the ‘intellectual and spatial confinement’ (Appadurai, 1988, p. 38) of this very knowledge that we must challenge in our thinking on climate change adaptation. Issues of both localized and at the same time globally networked scales must be problematized and handled with care and sensitivity, acknowledging that scalar configurations are fluid and that there is a ‘constant societal struggle for the command over particular scales’ (Swyngedouw & Heynen, 2003). Scalar politics (MacKinnon, 2011) remind us that our understandings of the local and the global in climate change adaptation are themselves relational productions (Cameron, 2012). A focus on justice as recognition of different ontologies and epistemological traditions, and a reflexive approach (Prance, 2017) can help make visible experiences of oppression, discrimination and exclusion in adaptation. This is crucial for the discussions we need to co-create and for enabling the culturally appropriate interventions we want.

Conclusion

Environmental justice perspectives can be useful for examining relations of knowledge and power in adaptation in at least three ways. First, the trivalent view of justice can be an analytical framework for systematic inquiry into distributive, procedural and epistemic justice (justice as recognition) and the interconnections of these dimensions. Second, environmental justice perspectives informed by global movements carry with them more radical claims for justice and a sensitivity to the historical root causes of vulnerability and the structural ‘multidimensional inequalities’ (Dietz, 2009, p. 189) that are at the core of barriers to adaptation. And third, the deep entanglement of the environmental justice movement with indigenous communities and its openness towards considering different ontologies and *naturecultures* in diverse ways – including through different knowledges – constitutes a promising avenue for creating more just and transformative adaptation processes and outcomes. Different understandings of human-environment relations that allow, e.g. for less resource-intensive economies or have a different conceptualization of prosperity, such as the *Buen Vivir* approach developed in South America, can help us to question and rearrange our lifestyles in times of socio-ecological crisis (Klepp, 2018). Fundamentally, it challenges those interested in actively shaping adaptation to think about differentiated justice claims in a more systematic and at the same time more holistic way.

As the case study of the KAP highlighted, climate change adaptation enacted as a new development paradigm in the form of localized projects is anything but politically neutral or apolitical. Its dynamics of knowledge and power are partly perceived as postcolonial formations and manifest, often in a disguised manner, through strong, underlying assumptions about local climate change vulnerabilities and accepted solutions that are adopted by actors in adaptation projects. Adaptation thinking as adjustment privileges positivist and instrumental Western forms of knowledge, often with the

side-effect of ignoring other forms of knowledge and specific, highly localized forms of vulnerabilities – many of which are the result of colonial processes of dispossession and hegemonial power. The Kiribati case highlights the urgent need for locally led adaptation that addresses structural inequalities and is concerned with investing in the development of local capabilities (Colenbrander et al., 2018; Soanes et al., 2021). This does not mean that the international responsibility and engagement of global North organizations should be abandoned, on the contrary. It is about a joint negotiation and learning process that makes adaptation fairer and more open to different influences and to ‘ontological pluralism’ (Nightingale et al., 2020, p. 343).

Beyond the analytical, an environmental justice framing for adaptation can introduce normative ideas concerning inclusion and transparency that, in the interest of overarching goals such as effectively reducing vulnerabilities, can be imperative for the development and pragmatically successful implementation of any adaptation intervention. As environmental justice focuses on structural discrimination in human-environment relations, it underlines the productive and creative potentials of more radical system change and the necessity for transformative adaptation to tackle the socio-ecological crisis and its root causes.

Notes

1. Junior staff member of KAP, financed by a Ausaid volunteer program. Interview in his KAP office in Bairiki, South Tarawa on 25th April 2011.
2. Consultant working for the Office of te Beretitenti (the President of Kiribati). Interview on the terrace of her home on 14th May 2011.
3. Interview at the Office of te Beretitenti with an I-Kiribati adaptation expert on 14th June 2015.
4. Interview at the main office of KAP in Bairiki with a senior manager on 18th May 2015.
5. Interview in Betio with an I-Kiribati education expert on 27th May 2015.
6. Interview in Betio with an I-Kiribati education expert on 27th May 2015.
7. Junior staff member of KAP, financed by a AusAid volunteer program. Interview in his KAP office in Bairiki, South Tarawa on 25th April 2011.
8. Interview in Betio with an I-Kiribati education expert on 27th May 2015.
9. Interview at the Office of te Beretitenti with an I-Kiribati adaptation expert on 14th June 2015.
10. Interview at the Office of te Beretitenti with an I-Kiribati adaptation expert on 14th June 2015.
11. Consultant working for the Office of te Beretitenti (the President of Kiribati). Interview held at her home on 14th May 2011.
12. Interview in Betio with an I-Kiribati education expert on 27th May 2015.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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References

- Adger, N. W. (2003). Social capital, collective action, and adaptation to climate change. *Economic Geography*, 79(4), 387–404. <https://doi.org/10.1111/j.1944-8287.2003.tb00220.x>
- Adger, N. W., & Kelly, P. M. (1999). Social vulnerability to climate change and the architecture of entitlements. *Mitigation and Adaptation Strategies for Global Change*, 4(3/4), 253–266. <https://doi.org/10.1023/a:1009601904210>
- Anguelovski, I. (2016). From toxic sites to parks as (Green) LULUs? new challenges of inequity, privilege, gentrification, and exclusion for urban environmental justice. *Journal of Planning Literature*, 31(1), 23–36. <https://doi.org/10.1177/0885412215610491>
- Appadurai, A. (1988). Putting hierarchy in Its place. *Cultural Anthropology*, 3(1), 36–49. <https://doi.org/10.1525/can.1988.3.1.02a00040>
- Baatz, C. (2018). Climate adaptation finance and justice. *A Criteria-Based Assessment of Policy Instruments*. In: *Analyse & Kritik*, 40(1), 1–33. <https://doi.org/10.1515/auk-2018-0004>
- Barnett, J., & Campbell, J. (2010). Climate change and small island states: Power, knowledge and the South Pacific, Climate Change and Small Island States: Power, Knowledge and the South Pacific. Earthscan. <https://doi.org/10.4324/9781849774895>.
- Barrett, S. (2013). Local level climate justice? Adaptation finance and vulnerability reduction. *Global Environmental Change*, 23(6), 1819–1829. <https://doi.org/10.1016/j.gloenvcha.2013.07.015>
- Beck, S., & Mahony, M. (2017). The IPCC and the politics of anticipation. *Nature Climate Change*, 7(5), 311–313. <https://doi.org/10.1038/nclimate3264> doi:10.1038/nclimate3264
- Benzie, M. (2014). Social justice and adaptation in the UK. *Ecology and Society*, 19(1), <https://doi.org/10.5751/ES-06252-190139>
- Betzold, C. (2015). Adapting to climate change in small island developing states. *Climatic Change*, 133(3), 481–489. <https://doi.org/10.1007/s10584-015-1408-0>
- Betzold, C., & Weiler, F. (2018). *Development aid and adaptation to climate change in developing countries*. Springer International Publishing. <https://doi.org/10.1007/978-3-319-64510-0>.
- Brand, U., & Wissen, M. (2012). Global environmental politics and the imperial mode of living: Articulations of state–capital relations in the multiple crisis. *Globalizations*, 9(4), 547–560. <https://doi.org/10.1080/14747731.2012.699928>
- Bravo, M. T. (2009). Voices from the sea ice: The reception of climate impact narratives. *Journal of Historical Geography*, 35(2), 256–278. <https://doi.org/10.1016/j.jhg.2008.09.007>
- Bulkeley, H., Andonova, L. B., Betsill, M. M., Compagnon, D., Hale, T., Hoffmann, M. J., Newell, P., Paterson, M., Roger, C., & Vandever, S. D. (2014). *Transnational climate change governance, Transnational climate change governance*. Cambridge University Press. <https://doi.org/10.1017/CBO9781107706033>.
- Cameron, E. S. (2012). Securing indigenous politics: A critique of the vulnerability and adaptation approach to the human dimensions of climate change in the Canadian Arctic. *Global Environmental Change*, 22(1), 103–114. <https://doi.org/10.1016/j.gloenvcha.2011.11.004>

- Caney, S. (2005). Cosmopolitan justice, responsibility, and global climate change. *Leiden Journal of International Law*, 18(4), 747–775. <https://doi.org/10.1017/S0922156505002992>
- Caney, S. (2016). The Struggle for climate justice in a Non-ideal world. *Midwest Studies In Philosophy*, 40(1), 9–26. <https://doi.org/10.1111/misp.12044>
- Caney, S. (2018). Distributive justice and climate change. In S0 Olsaretti (Ed.), *The Oxford Handbook of distributive justice*. Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199645121.013.23>
- Chavez-Rodriguez, L. (2013). *Klimawandel und Gender: Untersuchung der Bedeutung von Geschlecht für die soziale Vulnerabilität in überflutungsgefährdeten Gebieten*. Universität Bremen.
- Chu, E., Anguelovski, I., & Carmin, J. (2016). Inclusive approaches to urban climate adaptation planning and implementation in the global south. *Climate Policy*, 16(3), 372–392. <https://doi.org/10.1080/14693062.2015.1019822>
- Colenbrander, S., Dodman, D., & Mitlin, D. (2018). Using climate finance to advance climate justice: The politics and practice of channelling resources to the local level. *Climate Policy*, 18(7), 902–915. <https://doi.org/10.1080/14693062.2017.1388212>
- Crang, M., & Cook, I. (2007). *Doing Ethnographies*. SAGE Publications Ltd. <https://www.doi.org/10.4135/9781849208949>
- Crate, S. A. (2011). Climate and culture: Anthropology in the Era of contemporary climate change. *Annual Review of Anthropology*, 40(1), 175–194. <https://doi.org/10.1146/annurev.anthro.012809.104925>
- De Wit, S. (2014). Denaturalizing adaptation, resocializing the climate: Theoretical and methodological reflections on how to follow a traveling idea of climate change. In G. E. S. I. N. G. F. H. E. R. B. E. C. K. J., & K. L. E. P. P. S (Eds.), *Denaturalizing climate change: Migration, mobilities and spaces*. Universität Bremen. artec Forschungszentrum Nachhaltigkeit.
- De Wit, S. (2018). A clash of adaptations: How adaptation to climate change is translated in northern Tanzania. In S. Klepp, & L. Chavez-Rodriguez (Eds.), *A Critical Approach to climate change adaptation discourses, policies and practices* (pp. 37–54). Routledge.
- Dean, A., Green, D., & Nunn, P. (2017). Too much sail for a small craft? Donor requirements, scale and capacity discourses in Kiribati. In E. Stratford (Ed.), *Island geographies: Essays and conversations* (pp. 67–88). Routledge.
- Dietz, K. (2009). Prima Klima in den Nord-Süd-Beziehungen? Die Antinomien globaler Klimapolitik: Diskurse, Politiken und Prozesse. In H.-J. Burchardt (Ed.), *Nord-Süd-Beziehungen Im Umbruch: Neue Perspektiven Auf Staat Und Demokratie in Der Weltpolitik* (pp. 183–218). Campus-Verlag.
- Donner, S. D., & Webber, S. (2014). Obstacles to climate change adaptation decisions: A case study of sea-level rise and coastal protection measures in Kiribati. *Sustainability Science*, 9(3), 331–345. <https://doi.org/10.1007/s11625-014-0242-z>
- Eriksen, S. H., Nightingale, A. J., & Eakin, H. (2015). Reframing adaptation: The political nature of climate change adaptation. *Global Environmental Change*, 35, 523–533. <https://doi.org/10.1016/j.gloenvcha.2015.09.014>
- Farbotko, C. (2010). Wishful sinking: Disappearing islands, climate refugees and cosmopolitan experimentation. *Asia Pacific Viewpoint*, 51(1), 47–60. <https://doi.org/10.1111/j.1467-8373.2010.001413.x>
- Few, R., Morchain, D., Spear, D., Mensah, A., & Bendapudi, R. (2017). Transformation, adaptation and development: Relating concepts to practice. *Palgrave Communications*, 3(1), 17092. <https://doi.org/10.1057/palcomms.2017.92>
- Foucault, M. (1980). *Power/knowledge: Selected interviews & other writings 1972-1977*. (C. Gordon, ed). Pantheon.
- Fünfgeld, H., & Schmid, B. (2020). Justice in climate change adaptation planning: Conceptual perspectives on emergent praxis. *Geographica Helvetica*, 75(4), 437–449. <https://doi.org/10.5194/gh-75-437-2020>
- Gajjar, S. P., Singh, C., & Deshpande, T. (2019). Tracing back to move ahead: A review of development pathways that constrain adaptation futures. *Climate and Development*, 11(3), 223–237. <https://doi.org/10.1080/17565529.2018.1442793>
- Goldman, M. J., Turner, M. D., & Daly, M. (2018). A critical political ecology of human dimensions of climate change: Epistemology, ontology, and ethics. *WIREs Climate Change*, 9(4), 1–15. <https://doi.org/10.1002/wcc.526>
- Graham, S., Barnett, J., Fincher, R., Mortreux, C., & Hurlimann, A. (2015). Towards fair local outcomes in adaptation to sea-level rise. *Climatic Change*, 130(3), 411–424. <https://doi.org/10.1007/s10584-014-1171-7>
- Hardy, R. D., Milligan, R. A., & Heynen, N. (2017). Racial coastal formation: The environmental injustice of colorblind adaptation planning for sea-level rise. *Geoforum; Journal of Physical, Human, and Regional Geosciences*, 87, 62–72. <https://doi.org/10.1016/j.geoforum.2017.10.005>
- Hein, J. (2019). *Political ecology of REDD+ in Indonesia: Agrarian conflicts and forest carbon*. Taylor & Francis.
- Holland, B. (2017). Procedural justice in local climate adaptation: Political capabilities and transformational change. *Environmental Politics*, 26(3), 391–412. <https://doi.org/10.1080/09644016.2017.1287625>
- Janoff, S. (2004). *States of knowledge: The co-production of science and the social order*. Routledge.
- Janoff, S. (2010). A New climate for society. *Theory. Theory, Culture & Society*, 27(2-3), 233–253. <https://doi.org/10.1177/0263276409361497>
- Keele, S. (2019). Consultants and the business of climate services: Implications of shifting from public to private science. *Climatic Change*, 157(1), 9–26. <https://doi.org/10.1007/s10584-019-02385-x>
- Kelman, I. (2010). Hearing local voices from small island developing states for climate change. *Local Environment*, 15(7), 605–619. <https://doi.org/10.1080/13549839.2010.498812>
- Kenner, D. (2019). *Carbon inequality: The role of the richest in climate change*. Routledge.
- Kerkhoff, v. L., & Lebel, L. (2006). Linking knowledge And action For sustainable development. *Annu. Rev. Environ.Resour.*, 31(1), 445–477. <https://doi.org/10.1146/annurev.energy.31.102405.170850> doi:10.1146/annurev.energy.31.102405.170850
- Klein, R. J. T., Midgley, G. F., Preston, B. L., Alam, M., Berkhout, F. G. H., Dow, K., & Shaw, M. R. (2014). Adaptation opportunities, constraints, and limits. In C. B. Field, V. R. Barros, D. J. Dokken, K. J. Mach, M. D. Mastrandrea, T. E. Bilir, M. Chatterjee, K. L. Ebi, Y. O. Estrada, R. C. Genova, B. Girma, E. S. Kissel, A. N. Levy, S. MacCracken, P. R. Mastrandrea, & L. L. White (Eds.), *Climate change 2014: Impacts, adaptation, and vulnerability. Part A: Global and Sectoral Aspects Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on climate change* (pp. 899–943). Cambridge University Press.
- Klepp, S. (2018). Framing climate change adaptation from a Pacific island perspective – The Anthropology of emerging legal orders. *Sociologus; Zeitschrift Fur Empirische Soziologie, Sozialpsychologische Und Ethnologische Forschung. A Journal for Empirical Sociology, Social Psychology, and Ethnic Research*, 68(2), 149–170. <https://doi.org/10.3790/soc.68.2.149> doi:10.3790/soc.68.2.149
- Klepp, S., & Chavez-Rodriguez, L. (2018). *A Critical Approach to climate change adaptation*. Routledge; | Series: Routledge advances in climate change research. <https://doi.org/10.4324/9781315165448>
- Knox, H. (2015). Thinking like a climate. *Distinktion: Journal of Social Theory*, 16(1), 91–109. <https://doi.org/10.1080/1600910X.2015.1022565>
- Kothari, U. (2005). Authority and expertise: The professionalisation of international development and the ordering of dissent. *Antipode*, 37(3), 425–446. <https://doi.org/10.1111/j.0066-4812.2005.00505.x>
- Law, J., & Mol, A. (2002). *Complexities: social studies of knowledge practices*. Duke University Press.
- Leach, M. (2008). Pathways to sustainability in the forest? Misunderstood dynamics and the negotiation of knowledge, power, and policy. *Environment and Planning A: Economy and Space*, 40(8), 1783–1795. <https://doi.org/10.1068/a40215>
- Lukes, S. (2005). *Power: A radical view. Second edition*. Palgrave.
- MacKinnon, D. (2011). Reconstructing scale: Towards a new scalar politics. *Progress in Human Geography*, 35(1), 21–36. <https://doi.org/10.1177/0309132510367841>
- Mahony, M., & Hulme, M. (2018). Epistemic geographies of climate change: Science, space and politics. *Progress in Human Geography*, 42(3), 395–424. <https://doi.org/10.1177/0309132516681485>

- Morchain, D. (2018). Rethinking the framing of climate change adaptation: knowledge, power, and politics. In S. Klepp, & L. Chavez-Rodriguez (Eds.), *A Critical Approach to climate change adaptation* (pp. 55–73). Routledge.
- Moss, J. (2018). *Climate change and justice*. Cambridge University Press.
- Nagoda, S., & Nightingale, A. J. (2017). Participation and power in Climate Change Adaptation Policies: Vulnerability in food security programs in Nepal. *World Development*, 100. <https://doi.org/10.1016/j.worlddev.2017.07.022>
- Newell, P., Srivastava, S., Naess, L. O., Torres Contreras, G. A., & Price, R. (2021). Toward transformative climate justice: An emerging research agenda. *WIREs Climate Change*, e733. <https://doi.org/10.1002/wcc.733>
- Nightingale, A. J. (2017). Power and politics in climate change adaptation efforts: Struggles over authority and recognition in the context of political instability. *Geoforum; Journal of Physical, Human, and Regional Geosciences*, 84, 11–20. <https://doi.org/10.1016/j.geoforum.2017.05.011>
- Nightingale, A. J., Eriksen, S., Taylor, M., Forsyth, T., Pelling, M., Newsham, A., Boyd, E., Brown, K., Harvey, B., Jones, L., Bezner Kerr, R., Mehta, L., Naess, L. O., Ockwell, D., Scoones, I., Tanner, T., & Whitfield, S. (2020). Beyond technical fixes: Climate solutions and the great derangement. *Climate and Development*, 12(4), 343–352. <https://doi.org/10.1080/17565529.2019.1624495>
- Nurse, L. A., McLean, R. F., Agard, J., Briguglio, L. P., Duvat-Magnan, V., Pelesikoti, N., Tompkins, E., & Webb, A. (2014). Small islands. In V. R. Barros, C. B. Field, D. J. Dokken, M. D. Mastrandrea, K. J. Mach, T. E. Bilir, M. Chatterjee, K. L. Ebi, Y. O. Estrada, R. C. Genova, B. Girma, E. S. Kissel, A. N. Levy, S. MacCracken, P. R. Mastrandrea, & L. L. White (Eds.), *Climate change 2014: Impacts, adaptation, and vulnerability. Part B: Regional aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel of climate change* (pp. 1613–1654). Cambridge University Press.
- Ojha, H. R., Ghimire, S., Pain, A., Nightingale, A., Khatri, D. B., & Dhungana, H. (2016). Policy without politics: Technocratic control of climate change adaptation policy making in Nepal. *Climate Policy*, 16(4), 415–433. <https://doi.org/10.1080/14693062.2014.1003775>
- Oppenheimer, M., Glavovic, B., Hinkel, J., Roderik, V., Magnan, A., Abd-Elgawad, A., Rongshu, C., Miguel, C.-J., Robert, D., Ghosh, T., Hay, J., Ben, M., Meyssignac, B., Sebesvari, Z., S, A. J., Dangendorf, S., & Frederikse, T. (2019). *Sea level rise and implications for Low lying islands, coasts and communities, in: IPCC Special Report on the Ocean and Cryosphere in a Changing climate*. IPCC.
- Osborne, N. (2015). Intersectionality and kyriarchy: A framework for approaching power and social justice in planning and climate change adaptation. *Planning Theory*, 14(2), 130–151. <https://doi.org/10.1177/1473095213516443>
- Paavola, J. (2008). Livelihoods, vulnerability and adaptation to climate change in morogoro, Tanzania. *Environmental Science & Policy*, 11(7), 642–654. <https://doi.org/10.1016/j.envsci.2008.06.002>
- Paavola, J., & Adger, W. (2002). Justice and Adaptation to Climate Change (No. 23). Norwich.
- Paavola, J., & Adger, W. N. (2006). Fair adaptation to climate change. *Ecological Economics*, 56(4), 594–609. <https://doi.org/10.1016/j.ecolecon.2005.03.015>
- Paprocki, K. (2018). Threatening dystopias: Development and adaptation regimes in Bangladesh. *Annals of the American Association of Geographers*, 108(4), 955–973. <https://doi.org/10.1080/24694452.2017.1406330>
- Prance, F. (2017). Indigenous ontologies and developmentalism. Analysis of the national Consultations for the Kiribati Adaptation program. In J. P. Marsahll, & L. Connor (Eds.), *Environmental Change and the world's futures: Ecologies, ontologies and mythologies* (pp. 113–129). Routledge.
- Roberts, E., & Pelling, M. (2020). Loss and damage: An opportunity for transformation? *Climate Policy*, 20(6), 758–771. <https://doi.org/10.1080/14693062.2019.1680336>
- Roberts, J. T. (2009). The international dimension of climate justice and the need for international adaptation funding. *Environmental Justice*, 2(4), 185–190. <https://doi.org/10.1089/env.2009.0029>
- Rudiak-Gould, P. (2012). Promiscuous corroboration and climate change translation: A case study from the Marshall Islands. *Global Environmental Change*, 22(1), 46–54. <https://doi.org/10.1016/j.gloenvcha.2011.09.011>
- Schlosberg, D. (2007). *Defining environmental justice*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199286294.001.0001>
- Schlosberg, D. (2009). *Defining environmental justice: theories, movements and nature*. Oxford University Press.
- Schlosberg, D. (2012). Climate justice and capabilities: A framework for adaptation policy. *Ethics & International Affairs*, 26(4), 445–461. <https://doi.org/10.1017/S0892679412000615>
- Schlosberg, D., & Collins, L. B. (2014). From environmental to climate justice: Climate change and the discourse of environmental justice. *Wiley Interdiscip. WIREs Climate Change*, 6(2), 359–374. <https://doi.org/10.1002/wcc.275>
- Shi, L., Chu, E., Angelovski, I., Aylett, A., Debats, J., Goh, K., Schenk, T., Seto, K. C., Dodman, D., Roberts, D., Roberts, J. T., & VanDeveer, S. D. (2016). Roadmap towards justice in urban climate adaptation research. *Nature Climate Change*, 6(2), 131–137. <https://doi.org/10.1038/nclimate2841>
- Soanes, M., Bahadur, A., Shakya, C., Smith, B., Patel, S., Rumbaitis, C., Coger, T., Dinshaw, A., Patel, S., Huq, S., Musa, M., Rahman, F., Gupta, S., Dolcemascolo, G., & Mann, T. (2021). Principles for locally led adaptation: A call to action. IIED Issue Paper, January 2021. International Institute for Environment and Development. <https://pubs.iied.org/sites/default/files/pdfs/2021-01/10211IIED.pdf>
- Spivak, G. C. (1999). *A Critique of Postcolonial Reason, A Critique of Postcolonial reason*. Harvard University Press. <https://doi.org/10.2307/j.ctvjsf541>
- Steele, W., Maccallum, D., Byrne, J., & Houston, D. (2012). Planning the climate-just city. *International Planning Studies*, 17(1), 67–83. <https://doi.org/10.1080/13563475.2011.638188>
- Steele, W., Mata, L., & Fünfgeld, H. (2015). Urban climate justice: Creating sustainable pathways for humans and other species. *Current Opinion in Environmental Sustainability*, 14, 121–126. <https://doi.org/10.1016/j.cosust.2015.05.004>
- Swyngedouw, E., & Heynen, N. C. (2003). Urban political ecology, justice and the politics of scale. *Antipode*, 35(5), 898–918. <https://doi.org/10.1111/j.1467-8330.2003.00364.x>
- Tanner, T., & Horn-Phathanothai, L. (2014). *Climate change and development, climate change and development*. Routledge. <https://doi.org/10.4324/9780203818862>
- Taylor, M. (2015). *The political ecology of climate change adaptation: Livelihoods, agrarian change and the conflicts of development*. 1st ed. The Political Ecology of Climate Change Adaptation: Livelihoods, Agrarian Change and the Conflicts of Development. Routledge, London.
- Taylor, M. (2017). Climate change and development. In H. Veltmeyer, & P. Bowles (Eds.), *The essential guide to critical development studies* (pp. 351–359). Routledge.
- Thomas, D. S. G., & Twyman, C. (2005). Equity and justice in climate change adaptation amongst natural-resource-dependent societies. *Global Environmental Change*, 15(2), 115–124. <https://doi.org/10.1016/j.gloenvcha.2004.10.001>
- Ulloa, A. (2018). *Reconfiguring climate change adaptation policy, in: A Critical Approach to climate change adaptation* (pp. 222–238). Routledge. <https://doi.org/10.4324/9781315165448-12>
- Walker, G. (2012). *Environmental justice: Concepts, evidence and politics, environmental justice: Concepts, evidence and politics*. Routledge. <https://doi.org/10.4324/9780203610671>
- Watts, M. J. (2015). Now and then: The origins of political ecology and the rebirth of adaptation as a form of thought. In T. Perreault, G. Bridge, & J. McCarthy (Eds.), *The Routledge handbook of political ecology* (pp. 19–50). Routledge.
- Webber, S. (2013). Performative vulnerability: Climate Change Adaptation Policies and financing in Kiribati. *Environment and Planning A: Economy and Space*, 45(11), 2717–2733. <https://doi.org/10.1068/a45311>
- Webber, S., & Donner, S. D. (2017). Climate service warnings: Cautions about commercializing climate science for adaptation in the developing world. *Wiley Interdiscip. WIREs Climate Change*, 8(1), 1–8. <https://doi.org/10.1002/wcc.424>

- Weir, T., & Pittock, J. (2017). Human dimensions of environmental change in small island developing states: Some common themes. *Regional Environmental Change*, 17(4), 949–958. <https://doi.org/10.1007/s10113-017-1135-3>
- Weisser, F., Bollig, M., Doevenspeck, M., & Müller-Mahn, D. (2014). Translating the “adaptation to climate change” paradigm: The politics of a travelling idea in Africa. *The Geographical Journal*, 180(2), 111–119. <https://doi.org/10.1111/geoj.12037>