

# Final Report



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## ABSTRACT OF THESIS

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The way humans think, feel, and experience the exercise of power matters in climate change adaptation. Climate change adaptation has emerged as a critical agenda in global environmental politics. However, global environmental politics and research practice in climate change adaptation have been dominated by Western scientific institutions and networks. Therefore, it is important to shift and re-centre knowledges and research practices beyond Western research paradigms and locations. This thesis project uses a decolonial perspective and approach to analyse the processes of knowledge production, integration, and exchange in climate change adaptation research. Drawing on the perspectives and experiences of 17 climate researchers and practitioners from different countries, including India, Japan, Taiwan, and the Philippines, I analyse their subjectivities in relation to their research practices, perception, and embodied experiences of climate change adaptation research. Overall, I assert that re-centring subjectivity in processes of climate change adaptation is critical for improving knowledge practices in climate change adaptation research. I also highlight multiple levels and dimensions of power dynamics that shape the research practices, outcomes, and the subjectivities of climate researchers and practitioners. Additionally, I suggest that a decolonial perspective of critical border thinking and relationality is significant for opening-up transformative and collective possibilities in adaptation research and planning.

**Keywords:** Climate change adaptation, knowledge practices, power dynamics, subjectivity, decoloniality

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## Glossary

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**Climate change adaptation** was understood as the decision-making processes and actions undertaken by individuals, communities, governments, and other organisations to adjust to present and future socio-ecological shocks, stresses, and changing conditions, including “new regimes of knowledge” (Eriksen et al., 2015: p.523).

**Colonialism** is not simply a past reality of European empires in pursuit of conquest and colonization. The logic and forces of colonialism produce and reproduce various forms of extractivism, violence, discrimination, and social inequalities.

**Coloniality** refers to the long-standing patterns of power that were shaped by the politics and practices of colonialism (Maldonado-Torres, 2007).

**Critical border thinking** denotes a perspective and a field of analysis that denies the epistemic privilege of any knowledge system (be it scientific, indigenous, or local knowledges) over another knowledge system or way of knowing (Mignolo & Tlostanova, 2006). Critical border thinking provides a method, a way, of slipping between the borders of coloniality and decoloniality.

**Decoloniality** denotes to the acknowledgment of the structural injustices of colonial legacies and systems, and the conscious de-linking from privileging Western research paradigms (Mignolo, 2007).

**Decolonization** refers to the liberation and independence of colonized territories from colonial administration. In decolonial scholarship, however, decolonization is a failed project (Maldonado-Torres, 2011). Movements, such as the Black Lives Matter, feminist, and queer movements exemplify new and emerging understandings of decolonization.

**Positionality** refers to the social and political context that informs an individual’s assumptions, identity, and worldview (Coghlan & Brydon-Miller, 2014).

**Power** has different meanings and interpretations. Rather than trying to identify whether power is a positive or negative thing, a decolonial and a relational understanding of power draws attention to everyday interactions, social practices, and contexts.

**Relationality** refers to the Spanish word, “*vincularidad*”, and denotes the interdependent nature of all humans and non-humans on the planet (Mignolo & Walsh, 2018).

**Shifting the geography of reason** denotes the practice of moving away from objective and neutral principles of modern scientific research. Instead, shifting the geography of reason involves turning our research attention to the context, peoples, and lived experiences from subaltern locations and/or living in marginalized contexts.

**Subjectivity** is understood as the way in which the individual understands themselves, their worldview, including their knowledges, perception, and lived experiences (Sithole, 2014).

## 1. Introduction

The way humans think, feel, and experience the exercise of power matters in climate change adaptation. Climate change adaptation has emerged as a critical agenda in global environmental politics. However, global environmental politics and research practice in climate change adaptation have been dominated by Western scientific institutions and networks. Therefore, it is important to shift and re-centre knowledges and research practices beyond Western research paradigms and locations. Drawing on the perspectives and experiences of 17 climate researchers and practitioners from different countries, including India, Japan, Taiwan, and the Philippines, I analysed their subjectivities in relation to their research practices, perception, and embodied experiences of climate change adaptation research. C

In my thesis, I explored the interrelationship of power, knowledge, and subjectivity from the perspectives and experiences of climate researchers and practitioners who were involved in a project called, “Stepping-up Knowledge Exchange Between Climate Adaptation Platforms” (KE4CAP). I referred to the KE4CAP project as a case study for examining a global network of researchers and practitioners involved in the development and provision of climate services. The KE4CAP project involved a project consortium of five different university and research institutions in Ireland, the UK, and the Netherlands, which comprised of a team of six researchers and project coordinators. In general, the KE4CAP network comprised of more than 200 climate adaptation practitioners, platform developers, operators, and specialists, representing 30 climate adaptation platforms across the globe.

The pragmatic significance of the thesis project is grounded in its decolonial methodology and analysis. I draw on key decolonial concepts and decolonial thinking in relation to examining fundamental aspects of knowledge creation, integration, and exchange in climate change adaptation research. This final report provides an overview of the aims, literature review, methodology, and main research findings.

This report is intended for members and non-members of the KE4CAP community and for those who contributed to the development of the thesis. Students and researchers interested in decolonial methodology and knowledge politics in climate change adaptation research may also find this report useful as an example of integrating decolonial thinking and a decolonial approach into the production of a master’s level thesis. Additionally, the main thesis findings serve as food for future research investigating climate subjectivities and for opening up spaces for other, similar, different decolonial projects.

## 2. Thesis aims and research questions

Two overarching aims guided this thesis project. Firstly, I aimed to investigate and understand how power dynamics shape processes of knowledge production, integration, and exchange in climate adaptation research. Secondly, I aimed to analyse how might a decolonial methodology and framework improve environmental research practices. Three research questions were derived from these aims:

1. How do power dynamics and relations operate in processes of knowledge production, integration, and exchange in climate adaptation research? And how do those power dynamics and relations influence adaptation decision-making processes?
  2. How do individual experiences and perceptions shape the subjectivity and positionality of researchers and practitioners involved in climate change adaptation?
  3. How might a decolonial methodology and framework improve specific research practices in climate services and climate change adaptation?
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## 3. Literature review, relevant theory and concepts

To gain a holistic understanding of current research and research practices in the main knowledge areas included in the thesis, I conducted an interdisciplinary review of academic literature of decolonial scholarship, climate services, and knowledge exchange. Decolonial scholarship served as a critical foundation for reviewing and analysing academic literature. At the same time, I drew on the theory and thinking of several researchers in the fields of adaptation politics and Science and Technology Studies. Accordingly, theory and thinking from adaptation politics and Science and Technology Studies assisted in tying together a decolonial critique of knowledge practices in climate services and knowledge exchange.

The first three sub-chapters below will introduce key aspects of decolonial scholarship, adaptation politics, and Science and Technology Studies. Subsequently, a review of literature of knowledge practices in climate services and in knowledge exchange is included. The review is written from a decolonial perspective and raises questions about issues of power and politics in relation to the respective fields.

### 3.1. Decolonial scholarship

In recent years, burgeoning academic literature on decolonization have indicated growing interest in the topic. From the fields of political ecology to public education and international relations, various academic disciplines have commented on the relevance of decolonial theory and scholarship. In 2022, the Intergovernmental Panel on Climate Change (IPCC) report on “Climate

Change: Impacts, Adaptation, and Vulnerability” included the word, “colonialism”<sup>1</sup> for the first time since the first IPCC climate assessment report was published in 1988. As such, the pertinence of engaging with decolonial concepts and research – in the domains of academia, research, policy, and politics – is underscored.

Decolonial scholarship builds on postcolonialism and postcolonial theory (Radcliffe, 2017), and highlights the inextricable relationship between power and knowledge (Mignolo & Walsh, 2018). Colonialism is not simply a past reality of European empires in pursuit of conquest and colonization. Rather, the logic and forces of colonialism (re)produce various forms of extractivism, violence, and discrimination (Mignolo & Walsh, 2018; Schulz, 2017). Correspondingly, the historical trajectory of colonialism can be seen in the form of in western industrialization and colonial appropriation (Schulz, 2017). Thus, colonially inflected power differentials permeate many forms of thinking and being, and manifest in forms of living and doing.

Alongside decolonial scholarship, research and activism in environmental and social justice critically evaluate and address issues about accountability, justice, and reparations. In the case where the world’s most economically developed countries are historically the largest emitters of greenhouse gas emissions (Cohen et al., 2018), the poorest and most-vulnerable communities (often located in countries in the Global South and small island developing states) disproportionately suffer from the impacts of climate change, despite contributing the least to climate change (Sealey-Huggins, 2016). Subsequently, matters of environmental and social injustice do not only exemplify complex issues of geopolitics and power, but they also highlight the colonial roots of climate change.

From a postcolonial and a decolonial perspective, “knowledge production and everyday relations are informed by European colonial modalities of power and propped up by imperial geopolitics and economic arrangements” (Collard et al., 2015: p.323). As such, colonial legacies do not only shape the institutions and systems that govern society, but they also influence forms of knowledge and ideas about development, democracy, economy, science, racial-ethnic differences and so on (Radcliffe, 2017). In this sense, the legacies of colonial power and relations permeate most, if not *all*, forms of thinking and knowledges.

In decolonial scholarship, the terms “coloniality” and “decoloniality” were introduced by Peruvian sociologist, Aníbal Quijano in 1990. Coloniality relates to the “long-standing patterns of power that emerged as a result of colonialism” (Maldonado-Torres, 2007: p.243). In Nelson Maldonado-Torres’ (2016) “Outline of Ten Theses on Coloniality and Decoloniality”, he explained that coloniality “involves a radical transformation of power, knowledge, and being leading to the coloniality of power, the coloniality of knowledge, and the coloniality of being” (p.18).

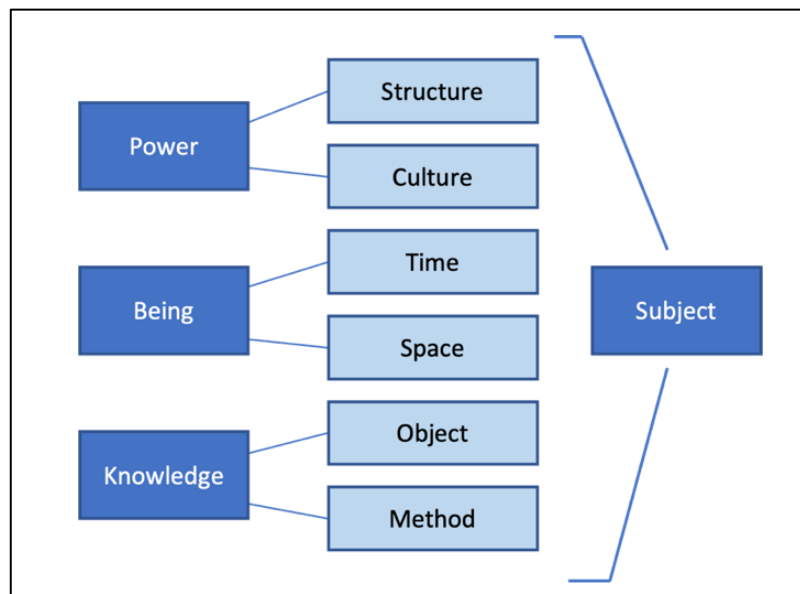
Deriving from Maldonado-Torres’ conceptualization of coloniality, we can visualize the inextricable link between power, being, and knowledge - see *Figure 1*. The term, “subject” in *Figure 1* is not used to mean an academic discipline or conversation topic, rather, referring to the totality of a human being. However, coloniality is not isolated to individual beings or experiences.

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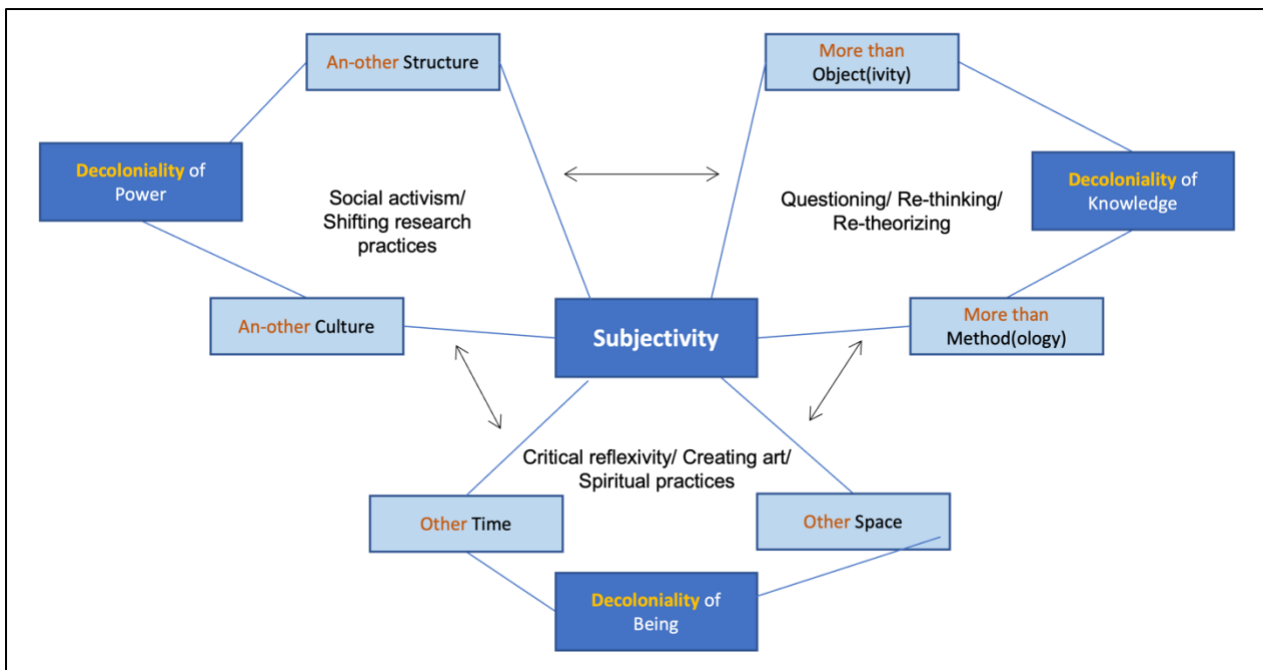
<sup>1</sup> SPM.B.2 and SPM.B.2.4 in IPCC, 2022.

Coloniality intersects the social dimensions of human and non-human relations, including the dimensions of thinking, knowing, sensing, and feeling.

The counter-logic of coloniality is decoloniality – see *Figure 2*. The concept of decoloniality is twofold. Firstly, decoloniality involves acknowledging the privileging of dominant Anglo-American Euro-centred values and methods (Held, 2019). Subsequently, decoloniality involves the conscious de-linking from the reification of Western research paradigms (Mignolo, 2007).



*Figure 1* Analytics of coloniality – coloniality of power, coloniality of being, and coloniality of knowledge (Maldonado-Torres, 2016: p.19)



*Figure 2* Analytics of decoloniality of power, decoloniality of knowledge, and decoloniality of being in relation to subjectivity (Maldonado-Torres, 2016: p.30)



The concept of decoloniality provides a critical conceptual foundation for interrogating modernity/coloniality. Mignolo (2000) conceptualized coloniality as the “darker side” of modernity. In this view, the rhetoric of modernity is rooted in the ideology of Western civilization and in Anglo-American Eurocentric claims of so-called “universal truths” (Mignolo & Walsh, 2018; Held, 2019). Thus, modernity and coloniality are not just inextricably linked together, but they are constitutive of one another.

### 3.2. Adaptation politics

In addition to decolonial scholarship, seminal literature from the field of adaptation politics was considered. Researchers of adaptation politics assert that there is an over-emphasis on technical and managerial fixes in climate change adaptation research and practice (Nightingale et al., 2019). At the same time, there is a lack of research attention on the experiences and ground realities of the people involved or affected in adaptation decision-making. This research gap exemplifies a significant problem in climate change adaptation research, policy, and practice.

In the thesis, adaptation was understood as the decision-making processes and actions undertaken by individuals, communities, governments, and other organisations to adjust to present and future shocks, stresses, and changing conditions, including “new regimes of knowledge” (Eriksen et al., 2015: p.523). There are, however, different definitions and interpretations of adaptation. Consequently, what it means to adapt and what is perceived as ‘good adaptation’ in one place may actually result in maladaptation elsewhere (Barnett & O’neill, 2010; Schipper, 2020).

Furthermore, adaptation is always political and subjective (Eriksen et al., 2015; Nightingale et al., 2021). As such, issues of politics and power become central in processes of climate change adaptation. At the same time, the concept of subjectivity is crucial for understanding how the exercise of power situates individuals and collectives in relation to one another, and in relation to processes of climate change and adaptation. The situatedness of subjectivity draws from feminist theory and resonates with decolonial scholarship.

Nightingale and colleagues (2021) highlighted that the imposition of subjective categories “is particularly relevant given the labelling of groups such as women, indigenous peoples, or developing countries as ‘vulnerable’ or lacking ‘climate resilience’” (p.528-529). But what does it mean to be ‘vulnerable’ or ‘resilient’? Can one be vulnerable and resilient at the same time? How are these subjectivities produced, and by whom? In what ways are these subjectivities fixed?

In parallel to adaptation politics literature, decolonial scholars highlight that the creation of subjective identities and categories of race, class, gender, sexuality, and so on, is linked to colonialism (Mignolo, 2000). At the same time, colonial discourses often endorse Western scientific research methods and language, wherein the non-Western subject is silenced, subjugated, and labelled as “exotic”, “dangerous”, “un-changing”, and “Other” (Said, 1978). Thus, focusing on subjectivity exemplifies an integral decolonial methodology, while also signifying a pursuit of improving research in understanding the ground realities of climate change adaptation.

### 3.3. Science and Technology Studies

The relationship between power and knowledges has been widely studied (Foucault, 1980, 1995; Mignolo, 2000). In the environmental field, several scholars, including William San Martín (2021) draw on Science and Technology Studies theory to highlight the significant role of scientific institutions and networks have in shaping power relations and knowledge practices in global environmental research.

Global environmental research has been dominated by western scientific institutions and networks. For example, in 1985, the Villach Conference signified the most influential climate assessment of the decade, and preceded the founding of the IPCC (San Martín, 2021; Yamineva, 2017). However, there were no researchers from countries outside of the North American and European continents who participated in the conference (Yamineva, 2017). Even though there is some level of concerted effort to include researchers and participants from countries in the Global South in the design and production of environmental assessments, frameworks, and reports., there is still a lack of participation of scientific actors and knowledges outside of the Global North.

In addition to unequal levels of participation in global environmental research, Western research institutions and networks, such as the IPCC and the United Nations Framework Convention on Climate Change (UNFCCC) shape what knowledges are considered relevant and authoritative. The IPCC reports also “have been criticized for relying too much on global models, which do not represent regional and local changes in climate well” (Eriksen et al., 2015: p.528). Consequently, the ground reality and lived experiences of climate change are poorly represented in global environmental assessments, reports, and solutions.

According to San Martín (2021), postcolonial arrangements and relations do not only “influence the ways in which knowledge is validated or dismissed”, but they also have “profound epistemological implications, as settings shape the legitimisation of research networks and determine what and whose knowledge is authoritative” (p.424). In line with decolonial scholarship, the proliferation of Western research paradigms and networks is intrinsically linked to colonialism (L.T. Smith, 2012; Held, 2019). Therefore, the dominance of Western research institutions and networks in setting international scientific agendas and research frameworks must be more-carefully considered in environmental research and practice.

In short, it is crucial to interrogate the power dynamics and relations within and between research institutions and networks, and how those power dynamics and relations shape environmental knowledges and knowledge practices. In my thesis, I studied the relationship of power and knowledges in climate adaptation research, specifically, from a decolonial perspective and through the lens of subjectivity.

### 3.4. Climate services and a decolonial perspective

Referring to decolonial scholarship, together with analytical thinking from adaptation politics and Science and Technology Studies, a review of literature from the fields of climate services and knowledge exchange was conducted. Over the last decade, the field of climate services emerged as a response of the need for legitimate, credible, and relevant climate information. Climate services

is a multidisciplinary research area that is predominantly science-based, user-oriented, and tailored for specific sectors (André et al., 2021). However, the field of climate services is greatly contested and there are several barriers that limit the uptake of climate services.

Many climate service providers generally rely on digital platforms as a key resource. Digital platforms for climate services exemplify a set of digital resources that enable climate service providers to develop, integrate, and distribute specific tools and applications intended for assisting society adapt to climate risks and climate variability. At the same time, digital platforms create digital spaces where multiple stakeholders from various sectors can access and make use of climate services, while also having the option to interact with the climate service providers and other stakeholders (Bonina et al., 2021).

Analysing knowledge practices in the field of climate services, specifically from a decolonial perspective, brings into question several assumptions and issues of power. It also begs to question the use of certain terminology in climate services. For example, who are the “providers” and “end-users” of climate services? How does terminology influence the power relations between said “providers” and “end-user”? Are the interactions between climate service “providers” and “end-users” as linear as what the terms suggest? What knowledges are represented in climate services and how are different knowledges valued in climate services?

The notion of climate services as “user-oriented” refers to a “bottom-up” approach of disseminating specific climate information and knowledges among specific individuals and decision-makers (the so-called, end-users) (André et al., 2021). However, the terminology of climate service “providers” and “end-users” accentuates a “supply-driven, one-directional delivery of climate information” (Daniels et al., 2020: p.1), which also conforms with a top-down approach of sharing information.

The discursive and material implications of terms, such as climate service “providers” and “end-users” have been criticized by several researchers. Scholars argued that the needs, reality, and context of local “end-users” are often subjectivized and imposed by the “climate service providers” (Porter and Dessai, 2017; Vincent et al., 2018). Additionally, a one-directional approach of provisioning climate services has been found to inadequately consider different understandings of uncertainty, vulnerability, and climate change adaptation (Porter and Dessai, 2017) let alone, incorporate the wider decision-making context of climate service participants and stakeholders in processes of adaptation (Vincent et al., 2018).

Extending on the critique of the framing of, and terminology used in climate services, the terminology of climate service “providers” and “end-users” exemplifies Lewis Gordon’s (2006) notion of “disciplinary decadence”, whereby the provision of climate services involves inward-looking research practices that are more concerned about the generation of knowledge products within its scientific domains and through specific scientific methods. Therefore, the terminology used in climate services and digital platforms suggests a shortcoming of the field, where the framing of climate change impacts and adaptation possibilities are chiefly prescribed by the climate service “providers” and imposed onto the local “end-users”. Yet, how might changing the terminology of climate services improve adaptation practice?

In recent years, researchers have highlighted the increasing pertinence of co-development, co-design, and transdisciplinary approaches in the field of climate services (Daniels et al., 2020; André et al., 2021). On the one hand, there are multiple “learning, empowerment, institutional” benefits that flow from co-productive approaches to climate services (Bremer et al., 2019: p.43). However, co-production processes can also reproduce existing unequal power relations (Turnhout et al., 2020). In several case studies, there was an over-emphasis on knowledge products as key outcomes of the development and provisioning of climate services (Turnhout et al. 2020). Nonetheless, research by Daniels and colleagues (2020) highlighted multiple emerging opportunities for transdisciplinary approaches to shifting research practices in climate services and re-framing the provision of climate services.

Additionally, the technological foundations of climate services and digital platforms was considered. In a chapter of the book, “Pluriverse: A Post-Development Dictionary” (edited by Kothari et al., 2019), George Caffentzis criticized “the adoption of digital tools in almost every sphere of daily life” (p.37). In his critique, Caffentzis introduced the notion of “blood computers” as an analogy to “blood diamonds”; “following increasing evidence of the trail of blood that computer production involves” (p.37).

The idea of “blood computers” is linked to extensive reports of armed conflicts and violence in mineral-rich countries, such as the Democratic Republic of the Congo, resulting in deaths, extortion, forced labour, and the displacement of local populations (Dias, 2009; Brophy & de Peuter, 2014). As such, the extractive and “notoriously exploitative” nature of producing digital electronic products emphasizes the need to be more-critically aware of the ecological and social injustices embedded within the structures and systems of many digital tools (Caffentzis, 2019: p.39), including that of digital platforms and climate services.

The field of climate services is a relatively new and evolving research area. While a growing number of countries and research institutions adopt frameworks and approaches to developing climate services to better inform processes of adaptation decision-making and adaptation planning, I highlighted the increasing relevance of digital platforms in disseminating climate service tools, products, and information. At the same time, we cannot simply celebrate the field of climate services as a potentially inclusive interface of science and society “without accounting for the conditions under which its technologies are produced” (Caffentzis, 2019: p.39). As climate policy frameworks, research agendas, and overall interests in climate services develop over the years, within my thesis, I examined the role (and subjectivity) of climate researchers and practitioners in designing, developing, and administering climate service tools and applications used to inform processes of climate change adaptation.

### **3.5. Knowledge exchange and a decolonial perspective**

In recognition of the critical role of scientific knowledge in adaptation processes, knowledge exchange has become an essential field in environmental research and practice (Fazey et al., 2014; Cvitanovic et al., 2019; Karcher et al., 2022). Knowledge exchange focuses on the practice of sharing and exchanging relevant information and knowledges in order to inform decision- and policy-making processes.

Knowledge exchange is essentially, comprised of social processes. Furthermore, processes of knowledge exchange are neither linear nor one-directional. Rather, the ways in which people communicate and interact with one another are shaped by institutional arrangements (Dolšák & Prakash, 2018; Hackett et al., 2016), socio-epistemic discrepancies and hierarchies (Young et al., 2016), and ontological assumptions (Mignolo & Walsh, 2018; Tlostanova, 2019). Thus, knowledge exchange processes interlink complex social dynamics and relations.

Researchers in the field have long examined significant barriers of knowledge exchange practice, however, many of those barriers remain salient. Subsequently, there are profound implications on how and which knowledges get or do not get integrated into processes of knowledge exchange, and who's knowledge is considered authoritative the processes of knowledge exchange (Young et al., 2016). Scholars of adaptation politics also stressed that there is a lack of research attention on power dynamics in climate adaptation research (Nightingale et al., 2021), let alone knowledge exchange.

A decolonial perspective of knowledge exchange offers a critical basis for questioning and re-thinking normative research practices in, and approaches to knowledge exchange. Who are the “knowledge producers” and “knowledge users” involved in knowledge exchange, and what makes them “knowledge producers” and “knowledge users” as opposed to those who are not? What makes one knowledge authoritative and/or legitimate for knowledge exchange as opposed to other knowledges? How can we more-critically understand the experiential and embodied ways of knowing in processes of knowledge exchange to better inform processes of climate change adaptation?

These questions do not have a straightforward answer, but they are pertinent to “how individuals, communities, governments and various other organisations interact in adaptation problem framing, the response options considered and whose interests and voices are able to influence such debates” (Eriksen et al., 2015: p.523). As such, studying the processes of sharing and exchanging knowledges relevant for climate change adaptation becomes crucial for understanding how the framing of climate issues and adaptation possibilities can reinforce existing social inequalities or empower certain groups of people.

Moreover, a decolonial perspective draws attention to the knowledge assumptions and the interests of the actors involved in the knowledge exchange process, and the context in which the knowledge is situated. At the same time, a decolonial perspective is not representative of a solution of decolonizing knowledge exchange research; rather, my emphasis is on creating spaces of contestation - allowing and encouraging us to critically question and possibly re-imagine our approach to exchanging and sharing knowledges.

In summary, a decolonial perspective of knowledge exchange draws attention to the intricate relationship of knowledges and power. Power exists and operates at the level of institutions, wherein formalized institutions and organizations play a significant role in shaping processes of knowledge exchange, including legitimizing and prioritizing certain knowledges over other knowledges and other ways of knowing. It is also important to note that knowledge exchange is inherently a social process, which means that social practices, human perception, and embodied experiences are pertinent to understanding processes of knowledge exchange.

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## 4. Theoretical framework

I developed a theoretical framework that comprised of three decolonial concepts. They include:

- i. **shifting the geography of reason;**
- ii. **focusing on subjectivity and integrating an intersubjective approach;**
- iii. **critical border thinking.**

The decolonial concept and approach of shifting the geography of reason was understood as looking beyond strict academic disciplines. At the same time, shifting the geography of reason orients attention to the research and researchers from locations and/or living in marginalized contexts. The notion of shifting the geography of reason was also understood as moving away from objectivity to subjectivity. In decolonial terms, this is known as shifting the geography of reason to the geo- and body-politics of knowledge (Mignolo & Tlostanova, 2006). This brings us to the second decolonial concept of focusing on subjectivity and integrating an intersubjective approach. In practice, focusing on subjectivity refers to listening to and engaging with the perspectives, assumptions, and experiences of the research participants. Thus, allowing them to construct and narrate their own subjectivity.

The third decolonial concept is critical border thinking. This was understood by acknowledging the plural ways of knowing and understanding the world. In this regard, critical border thinking allowed me to simultaneously draw on multiple perspectives and knowledge systems, such as scientific knowledge, indigenous knowledges, and Buddhist teachings and incorporate them into my writing and analysis. Subsequently, I used the above three decolonial concepts as my analytical approach and methodology to analysing processes of knowledge production and exchange in relation to the field climate services.

Another critical concept in decolonial scholarship is **relationality**. In decolonial terms, “relationality” refers to the Spanish word, “vincularidad”, which draws from Andean Indigenous thinkers, such as Nina Pacari and Fernando Huanacuni Mamani and denotes the relational and interdependent co-existence of all living organisms on the planet (Mignolo & Walsh, 2018). In this sense, relationality signifies the interconnection of human and more-than-human relations.

Linda Tuhiwai Smith, a Māori educationist, asserted that engaging with decolonial methodologies involves “a process which engages with imperialism and colonialism at *multiple levels*” (2012: p.606, italics added by author). Therefore, the concept of relationality is key for conceptualizing and studying power dynamics within and between human and more-than-human relations (Nightingale et al., 2021), while a relational approach is also useful for examining power dynamics “at multiple levels” of coloniality (of knowledge, power, and being) (L.T. Smith, 2012).

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## 5. Research methods and ethics

A qualitative and inductive research approach guided empirical research methods, which comprised of 10 weeks of online participation observation and a total of 18 online semi-structured interviews. A combination of individual interviews and small group interviews were conducted, with the latter involving 4-6 participants. In the interview process, I focused on the subjective-intersubjective perceptions and experiences of 17 climate researchers and practitioners in Asia, specifically in countries in India, Japan, Philippines, South Korea, Taiwan, as well as climate researchers and practitioners from Australia, Fiji, South Africa, and Samoa.

Participant information sheets were provided before beginning data collection. Furthermore, participant consent for audio-recording and transcribing interviews was confirmed before each interview, and participant confidentiality was also respected and ensured using pseudonyms. Subsequently, participation observation notes and interview data were collected and transcribed.

The study ensured that participation was voluntary, informed, and consensual. Furthermore, an iterative process involving critical reflexivity was a central practice throughout the different stages of research. The research participants' positionalities and contexts were considered, and my own positionality as a student researcher, a South-East Asian woman, whose first language is English, conducting interviews in English, as well as my research interests. At the same time, my positionality and experiential understanding of East Asian and South-East Asian cultures was crucial for understanding the views and perspectives of the participants the context(s) in which they were speaking from.

From a decolonial standpoint, research ethics and codes of conduct exemplify designing and conducting research in ways that do not reinforce hegemonic power relations. A balance between striving to challenge hegemonic norms and assumptions, recognizing my own positionality, and being respectful of different cultural norms and expectations underscore the reflexive research approach undertaken in the thesis.

### 5.1. The KE4CAP case study

I referred to the “Stepping-up knowledge exchange between climate adaptation platforms” (KE4CAP) project as a case study for examining a global network of researchers and practitioners involved in the development and provision of climate services. The KE4CAP project ran from November 2019 to January 2022. The KE4CAP project involved a consortium of five different university and research institutions from Ireland, the United Kingdom, and the Netherlands, which comprised a team of six researchers and project coordinators from those institutions.

In general, the KE4CAP network comprised of more than 200 climate adaptation practitioners, platform developers, operators, and specialists, representing 30 climate adaptation platforms across the globe. The KE4CAP project brought these climate adaptation researchers and

practitioners together through a range of knowledge exchange activities, where different actors shared individual lived experiences and approaches, including challenges and difficulties regarding the development, management, and provision of climate services.

It is important to make clear that the thesis was an independent project, and it is not directly affiliated with the objectives and activities of the KE4CAP project. Nevertheless, the main premise of the thesis project originated from a combination of personal reflections and various formal and informal conversations with colleagues.

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## 6. Research findings

In the thesis, presentation of thesis results, analysis, and discussion were integrated into three interrelated chapters. Before I summarise the research findings, I would like to revisit the overarching aims of the thesis project. First, I aimed to investigate and understand how power dynamics shape processes of knowledge production, integration, and exchange in climate adaptation research. I also aimed to analyse how might a decolonial methodology and framework improve environmental research practices – see *Chapter 2*.

Five main research findings emerged from the research. Firstly, there was an emphasis on wider engagement of research needed to focus on issues of power and how power dynamics affect processes of climate change adaptation. This is because power dynamics and power relations shaped how and which knowledges were prioritized, considered relevant and authoritative in processes of knowledge production, integration, and exchange. Thus, I reiterate the adaptation politics scholars who argued that research attention needs to focus on issues of politics and power more critically (Nightingale et al., 2021; Eriksen et al., 2015); specifically, to consider and scrutinise the different discourses and systems of power and knowledges in relation to climate adaptation.

The next research finding refers to the operation of power at multiple levels and dimensions. Correspondingly, I highlighted power differentials within and between scientific institutions at the international and national levels, as well as power dynamics operating at the individual level. For example, power dynamics and power relations influenced which actors were considered valid “knowers”, such as the “knowledge producers” and “climate service providers”, and which actors were considered “knowledge users” or “local users”. As such, the operation of power within national research institutions and research projects shaped the roles, practices, and expectations of teams of researchers and individual researchers.

Hierarchical power differentials also exemplified various decision-making processes that either restricted or facilitated the movement of knowledges relevant to informing adaptation planning and policymaking. For example, several climate researchers identified specific adaptation policy frameworks and standardized documents, such as the UNFCCC’s National Adaptation Plan guideline and the International Organization for Standardization (ISO) 14090 document.



However, international adaptation policy frameworks do not necessarily align with the local problems, procedures, and reality of climate change and adaptation of a specific context.

In an interview with Marcus Lee Chen-Wei, a research assistant of the Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP) at the National Science and Technology Center for Disaster Reduction in Taipei, Taiwan, Marcus talked about his experience of developing Taiwan's National Adaptation Plan (NAP). Marcus noted a mismatch between Taiwan's adaptation planning procedures and prescribed international adaptation frameworks. "In the UNFCCC, the NAP guidelines have four stages of A, B, C, D. And in the first stage, it recommends to engage decision-makers or key players at the very beginning to make them understand what adaptation is, or the importance and necessity of it." However, "it doesn't work that way in Taiwan". Instead, Marcus mentioned that "it usually starts with the work in reverse".

On the one hand, standardised documents, such as the UNFCCC NAP guideline are key to facilitating the uptake and implementation of national adaptation planning and policy. At the same time, international adaptation frameworks and guidelines exemplify the institutionalization of epistemic hierarchies in climate change adaptation research and practice (Kidd et al., 2017). This means that global models and frameworks for adaptation planning become superior forms of knowledge with specific knowledge practices and processes.

On the other hand, the decision-making processes of climate researchers, such as of Marcus, become critical avenues of integrating and excluding specific knowledges and knowledge practices in processes of adaptation planning and policymaking. In this regard, the exercise of power at the individual level, in the form of various decision-making processes, exemplify the relational dynamics of power. However, future research is required to better understand how power dynamics shape the adaptation decision-making processes beyond the domains of research institutions, and to include the livelihood domains of local actors and communities involved in and affected by adaptation processes.

Additionally, I highlighted that the design choices of specific research boundaries and agendas were pertinent in shaping knowledge practices in relation to climate change adaptation. In essence, design choices epitomize crucial avenues of re-imagining how we choose to see the world, including how climate researchers and practitioners situate themselves in processes of adaptation decision-making and planning. In my analysis, I drew on Madina Tlostanova's (2019; 2017) work and her critique of the proliferation, control, and arrangement of knowledge, systems of power, and forms of subjectivity as consequential of "coloniality of design".

In a paper, Tlostanova (2017) described coloniality of design as the "control and disciplining of our perception and interpretation of the world, of other human and nonhuman beings and things according to certain legitimized principles" (p.53). Coloniality of design draws our attention to specific design choices that can shape the perception, interpretation, and legitimization of the world, including different knowledges, and human and nonhuman beings. As such, coloniality of design signifies a decolonial perspective that supports researchers to studying and understanding how power dynamics and relations shape knowledge practices, and human and nonhuman relations in processes of adaptation decision-making.

The fourth research finding pertains to the thesis' second research question on the subjectivity and positionality of the climate adaptation researchers and practitioners. On one hand, the notion and implications of "coloniality of design" suggest that subjectivity and positionality are shaped by the institutions and networks that they exist in, including the research agendas and boundaries, such as of the KE4CAP project. On another hand, subjectivity and positionality are not fixed. Rather, subjectivity and positionality interlink different social practices, socio-cultural contexts, and unique lived experiences.

Grace Wong mentioned that she viewed her subject position in the KE4CAP project as "a participant rather than a contributor" because "I feel that we were listening more than contributing". From this standpoint, Grace's specific subject position emerged in relation to her participation and her perceived level of contribution to the knowledge exchange activities. Yet, Grace's subject position was not isolated to the domains of the KE4CAP project. She then alluded, "our experience or our side of the story about climate change, or at least adaptation services, [...] and sometimes Asian cultures are really different from the Western ones." For Grace, her subjectivity in knowledge exchange is also connected to her specific socio-cultural context and in relation to how Asian cultures and the experience of climate change in Asia relate to, as well as differ from, Western knowledge practices. In short, the subjectivities and positionalities of the climate researchers and practitioners were shaped by context, social practices, embodied experiences, and perception.

Adaptation politics scholars, Eriksen and colleagues (2015) noted that "subjectivities are never stable categories, but rather reflect the dynamic exercise of power, and as such can have contradictory and unpredictable outcomes" (p.525). From a shared perspective, the decolonial concept of shifting the geography of reason to the geo- and body-politics of knowledge and subjectivity supported in studying the dynamic and heterogenous nature of subjectivity. Subsequently, shifting the geography of reason to the geo- and body-politics of subjectivity highlighted the pertinence of re-centring subjectivity in processes of climate change adaptation and research.

Re-centring subjectivity in processes of adaptation is argued to be significant for highlighting experiential and embodied ways of knowing as valid knowledges. Moreover, it is argued that focusing on subjectivity in processes climate change adaptation promotes the development of research practices and methodologies in climate change adaptation research that better considers the lived experiences and emotions of individuals (Nightingale et al., 2021; Bond & Barth, 2020; Brown et al., 2019). Therefore, understanding the dynamic and heterogenous nature of subjectivity is inherent of decolonial thinking and decolonial methodologies; at the same time, it is fundamental to studying the "inner-worlds" of actors involved in processes of adaptation (Ives et al., 2020).

The final research finding responds to the thesis' third research question, which considered how might a decolonial methodology or framework improve specific research practices in climate services and climate change adaptation. A decolonial perspective served as a critical lens for studying the underlying assumptions and structures of knowledge production and knowledge integration in the field of climate services and in processes of knowledge exchange. However, there is no fixed methodology, nor a 'superior' framework used in decolonial research (Swadener &

Mutua, 2014; G.H. Smith, 2012). Rather, thinking, analysing, and writing from a decolonial perspective offered “an open critical basis” for conceptualizing and conducting climate change adaptation research (Tlostanova, 2019: p.176).

A decolonial approach of studying subjectivity was empowering albeit complicated. Shifting the geography of reason to the geo- and body-politics of subjectivity involved the consideration of nuanced perspectives and experiential and embodied ways of knowing. Even though research into these knowledge areas is not so straightforward, re-centring subjectivity in knowledge practices is argued to be crucial for studying and understanding new and emergent subjectivities and lived realities of climate change and adaptation. Furthermore, from a decolonial perspective, subjective boundaries, such as social class, migration status, and nationality are impermanent and contested concepts. Thus, the ways in which climate researchers and practitioners construct and configure specific categories of “us”, “them”, and “Other” exemplify critical cognitive and social spaces of contestation for re-imagining and re- configuring our relationships with one another, including human and more-than-human relations.

In addition, I assert that border thinking is critical for slipping between the borders of coloniality/decoloniality. This means that, on the one hand, it is important for researchers to recognize and interrogate the material and discursive implications of hegemonic discourses and knowledge systems of the world, including the scientific institutions and networks that dominate climate change adaptation research and practice. At the same time, a decolonial approach of conceptualizing relationality – including the notion of the interdependent nature of all humans and nonhumans – is crucial for opening-up spaces (within and between coloniality/decoloniality) possible for transformational adaptation and climate action (Nightingale et al., 2021).

Overall, this thesis project studied the subjectivities of climate researchers and practitioners as a way of analysing power dynamics at multiple levels, from global research institutions to social and individual dimensions of power. Even though recognizing the multiple levels and dimensions of power is only a small part of any decolonial endeavour, a decolonial perspective grounded the thesis project with an open and a critical basis for highlighting how subjectivities and knowledges are negotiated and contested. Nevertheless, closer attention to the historical timelines, cultural and traditional values of the research participants (be it climate researchers, policymakers, or farmers) and their contexts will help to enhance the value of the research. This provides the opportunity for future research to build on my decolonial approach and theoretical framework to investigate these issues of politics and power in environmental knowledge practices in a systematic and holistic manner.

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